



AMSA INTERNATIONAL
eNEWSLETTER

#34



ASPIRE

BE CONSIDERATE, BE VACCINATED!
BE CONSIDERATE, BE VACCINATED!

Health Issues

Explore new knowledge about vaccine hesitancy and bust the myths of vaccines with ASPIRE #34! more!

AMSA Intl Activities

Featuring reports of AMSA International Webinar Series, the AMSA x AMBOSS Lecture Series, and many more!

Clinical Challenge

Featuring the winners from ASPIRE #33 and a new challenge to complete!

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FOREWORD

Greetings, People of Tomorrow!

Welcome back to AMSA International eNewsletter: ASPIRE! We are delighted to bring this 34th edition special for AMSA International members. This time, the AMSA International eNewsletter has chosen a recent subject of debate that has been circulating the world lately: vaccination. Whether in the news, social media, or the Internet, vaccination issues have climbed their way up to the top. Everyone has a different perception regarding vaccinations, and social media and the Internet often serve as their media to address their concerns. Social media and the Internet are a sea full of information, but only a few pieces of information are accurate enough. Therefore, to be skeptical and critical of the information given are important traits for us to have as future doctors.

In this edition, you will find various articles made by beloved AMSA members that can give you insights about vaccine hesitancy, vaccinations programme in different countries, and vaccinations in certain populations. If you are still unsure about the truth of vaccines, you will also find many articles that expose the myths of vaccines and state the facts! We have also included updates on AMSA International activities that were held between March and May, including the Online Panel Discussion on Vaccine Distribution and Vaccine Hesitancy under the Interchapter Collaboration Programme of the Global Health, the World Haemophilia Day Competition, the AMSA x AMBOSS Lecture Series, and many more. Let us also travel back in time and learn more about the history of vaccines from our Infographic section!

Last but not least, we have the winners of the Clinical Challenge from ASPIRE 33. Congratulations! Clinical Challenge also made its way again in this edition. Make sure to participate and challenge yourselves with this quiz!

We sincerely hope that ASPIRE 34 will give deeper knowledge and inspirations to our beloved readers all over the world. Enjoy the ride, and be inspired by AMSA International eNewsletter!

Virtus et Doctrina, Viva AMSA!

Best regards,
Adeela Sandria Fitri Aini
Chief Editor of eNewsletter
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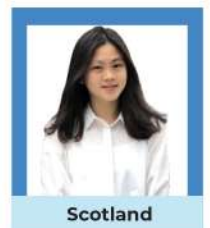
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The cover page features a large blue circle on the right side containing the text 'AMSA Intl' and 'ACTIVITIES'. On the left side, there is a vertical strip showing a portion of a multi-story building with windows and balconies. The background is a light blue and white geometric pattern of squares and rectangles.

AMSA Intl

ACTIVITIES

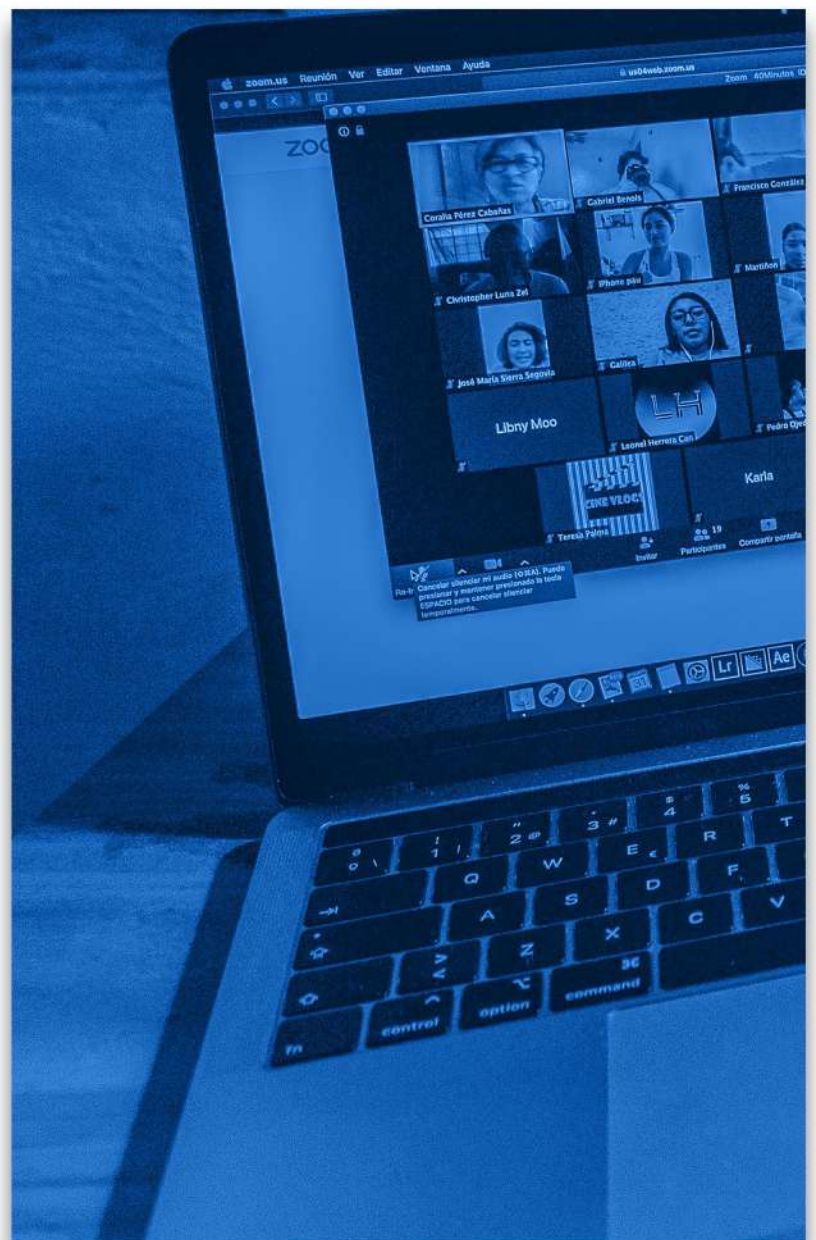
WORLD PRE-HEALTH CONFERENCE

Dear People of Tomorrow,

On 20 March 2021, our organisation was invited to have a one-hour keynote slot at the first conference of its kind - World Pre-Health Conference (WPC), a new partner and dear friend of the organisation that we have recently found. WPC is a conference hosted by a core network of pre-medical organisations, from Harvard University, University of Cambridge, and many others, spanning across the globe, with three primary missions:

1. To create mentorship/support systems for pre-health and pre-clinical students, particularly those from diverse backgrounds and centred on human rights and medical progress;
2. To offer professional/personal enrichment opportunities for pre-health and pre-clinical students; and
3. To foster in-depth, progress-making conversations related to current health issues, with expert context and student views.

Written by:
Marjorie Ong Jia Yi
Overall Chairperson
AMSA International



The conference has successfully gathered more than 1000 delegates from around the globe. It was our utmost gratitude to be invited to this very first conference of its kind. Three agendas have been delivered and addressed within an hour by Asian Medical Students' Association (AMSA) International:

1. Introducing AMSA International by Marjorie Ong, Vellia Justian, Nadira Nibras
2. Leadership in a Medical Student-Led Organisation by Marjorie Ong
3. Asia's Role in Global Health Leadership and Governance by Dr Khor Swee Kheng

It was the first time that AMSA International has been invited to be engaged in-depth with a conference hosted by a prestigious partner of the far east. We were able to introduce and talk about the vision and mission of AMSA with comfort and ease. The delegates were warmly curious and welcoming for our presence.



The next agenda addressed were tailored to encourage and motivate the participants, who may wonder how geeks like us spend our time in medical school apart from just studying. I would like to take this opportunity to share the highlights mentioned, documented into text in this artefact, with hopes to inspire the readers of this eNewsletter edition; potential talents out there, to brace themselves and run for the upcoming regeneration of AMSA International:

Know the game and OWN IT.

Imagine a game called AMSA International. In order to be worthy to own this game, you have to know the definition, objectives, vision and mission, profile and setting, constitution, and guidelines, addresses and protocols, corporate identity, competitors, and allies of this game.

Be the game master.

Imagine the management of a student-led organisation as a MMORPG. Now, AMSA International is a MMORPG. Being at the peak of the hierarchy of this MMORPG of its kind, and you are assigned the role of a game master. Imagine the role setting for each player: the carry with strength, the support with intelligence, the tank with maybe versatility. These are just random examples. It is important to master a game only after having adequate knowledge, so you can coordinate around with much confidence. Know your game in-and-out and own yourself the title of a game master, a real game master.

Add upgrades.

What are potential upgrades that you can consider to better your game?

Skill 1: The ideal leadership style for your game: altruistic vs authoritative.

Skill 2: The art of communication.

Skill 3: Time management.

Skill 4: Bundle of three – transparency, diplomacy, and empowerment.

The last agenda was brought to all by Dr Khor Swee Kheng, a brilliant AMSA alumni, senior and mentor, a global health specialist and a senior advisor of our very own Global Health subsidiary. He strives various advocacies and projects.

Dr Khor had enlightened the committee and delegation, opened our eyes with his perspectives on Asia's potential. He persuaded the audience with the capacity of Asia, and the region's associated responsibility in global health. He had analysed and accentuated three points of Asia's potential:

- Gain equal seats at the decision-making table, to govern global public goods more fairly.
- Provide funding for health infrastructure in Asia and globally.
- Introduce new ideas for how to deliver healthcare, including better science and production capacity.

Being the most populous continent, we indeed are brilliant, and own a magnificent space for great development. We thank the committee of WPC, for this twee conference. Our allotted one-hour slot was well optimised. It would not be possible without the super interactive audience. We thank you. Viva AMSA!

If your region does not have AMSA and you would love to pioneer and establish one, feel free to write to us at chair@amsa-international.org or secretary@amsa-international.org and we will be more than happy to guide you along the process. We support establishments of AMSA out of Asia-Pacific too. Stay curious but safe.

Top-Down vs Bottom-Up

Authoritative vs Altruistic

A vs B

C vs D

Asia's Role in Global Health Leadership & Governance

Harvard World Pre-Health Conference
KHOR Swee Kheng
20 March 2021

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STRONG NATIONS WITH VACCINATION: AN ONLINE PANEL DISCUSSION ON **VACCINE DISTRIBUTION AND VACCINE HESITANCY**

The World Immunisation Week is celebrated every last week of April. To commemorate, AMSA Philippines, AMSA Indonesia, and AMSA Malaysia under the Interchapter Collaboration Programme (ICCP) of the Global Health Subsidiary of AMSA International conducted an event called "Strong Nations with Vaccination: An Online Panel Discussion on Vaccine Distribution and Vaccine Hesitancy." We invited three doctors as panellists in this discussion, they are Dr Kenneth Hartigan-Go, the Adjunct Faculty at the Asian Institute of Management and a non-resident Research Fellow at the Ateneo School of Government, Philippines, Dr Paolo Victor Medina, the Assistant Professor at the Department of Family and Community Medicine, University of the Philippines, Philippines, and Dr Mark Cheong, the lecturer at the School of Pharmacy, Monash University, Malaysia. For those of you who are interested in this issue, let us now recapitulate the discussion in this article! .

How are vaccines relevant to health security in different countries?

Dr Kenneth: Vaccines has been there in our society for a very long time and is one of the best public health measures. Herd immunity is one thing that many public health professionals are rooting for. The way each country handles their vaccines, whether it is their administration or acceptance will create a difference in how we control this pandemic situation. The current problem is how we implement the vaccinations to achieve herd immunity.

Dr Paolo: As a community medicine practitioner, this issue is something that we are never tired of educating the public. We believe that vaccine confidence building is the key to a lot of public health intervention and is one of the many things that we should be doing to control the pandemic. It is always nice to do very well in doing vaccinations. When we do well in vaccinations, we also tend to do well in other things. It should also be contextualised with other minimum public health standards and interventions.

Dr Mark: COVID-19 pandemic has made us all realise how related the health of the citizens and the prosperity of the country are. The first thing we need to do is to achieve widespread vaccination. The second thing to consider is to protect the most vulnerable ones in the different segments of society. It is important not only to pro the countries' prosperity at the macro level but also at the micro-level to make sure that the most vulnerable and weakest among us are taken care of and protected at the same level as all of us.

Can you tell us about your current country's situation and national response including vaccine distribution?

Dr Mark: In Malaysia, we have begun our vaccination systematically. The main concern falls on two aspects, the speed of vaccinations and the availability of sustainable vaccines supply.

Malaysia has adopted 3 phases:

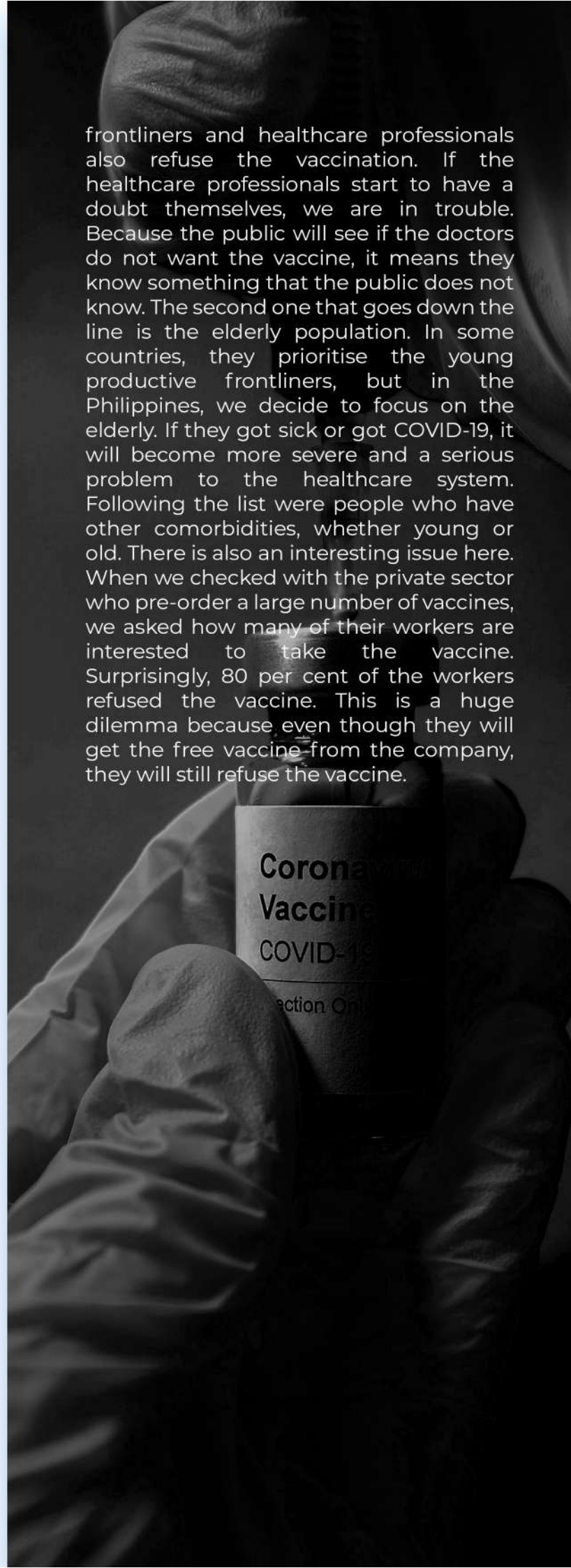
- 1st phase: vaccination of frontliners and essential workers;
- 2nd phase: vulnerable and high-risk groups which include the elderly and those with comorbidities;
- 3rd phase: any other population group besides the abovementioned groups.

The Malaysian government also committed to vaccinate non-citizens and immigrant workers, because very often, these marginalised groups, actually carry the most risk from the pandemic. Other things make vaccination programme harder are vaccine-hesitant individuals and anti-vaxxers which we must constantly deal with.

Dr Paolo: Unfortunately, it started with controversy in the Philippines. There was an issue with the available vaccine not being effective as other vaccines. It became very controversial because many people felt that they do not get a choice of the vaccines that they would get. If many people start refusing the vaccines, then we go down the line. Even if these vaccines are being offered down the priority line, there are still many controversies going on.

Dr Kenneth: The Philippines has over a 100 million population; we need to cover 75% of the population in order to cover decent herd immunity. Having said that, we only have two months of experience from 1 March up to 29 April, and the data showed that we only vaccinate 1 880 000 individuals. This number is a combination of those receiving 1st dose and 2nd dose. So far, the vaccines that we have in the Philippines are either donated from the COVAX facility from the WHO and the AstraZeneca vaccines, which comes to a total of only 523 000 doses. The other one is the Sinovac Company from China which also donated the vaccines. Given the number of vaccines that we have, we only inoculated 1 880 000. Out of the 1 million, some went to the priority ones which are the healthcare frontliners, but some

frontliners and healthcare professionals also refuse the vaccination. If the healthcare professionals start to have a doubt themselves, we are in trouble. Because the public will see if the doctors do not want the vaccine, it means they know something that the public does not know. The second one that goes down the line is the elderly population. In some countries, they prioritise the young productive frontliners, but in the Philippines, we decide to focus on the elderly. If they got sick or got COVID-19, it will become more severe and a serious problem to the healthcare system. Following the list were people who have other comorbidities, whether young or old. There is also an interesting issue here. When we checked with the private sector who pre-order a large number of vaccines, we asked how many of their workers are interested to take the vaccine. Surprisingly, 80 per cent of the workers refused the vaccine. This is a huge dilemma because even though they will get the free vaccine from the company, they will still refuse the vaccine.



What are some challenges that you have encountered in vaccine distribution at the global, national, and community levels?

Dr Paolo: At the community level, I once talked to a local community leader. He said that when he is a government official, he does educate people to get vaccinated and to follow the health protocols, but he does not want to be vaccinated. When I asked him the reason why, it seems that he has a certain logic to his reasoning. For example, he said that “the vaccines are produced so fast, only less than a year.” It means that there is a mistrust in the process of vaccine production that many people do not understand. This is a challenge for medical students too. When you look at individuals, they have so many things going on, and they will take the convincing discussion with them to even get them to consider changing their opinion. In my opinion, we are too focused on explaining the technical issues of the vaccine, and largely ignoring the social reasoning of these people. This is one of the big things that contribute to the issues that Dr Kenneth has explained earlier, even healthcare workers sometimes got these misconceptions.

Dr Kenneth: For the global challenge, there is a global supply shortage of vaccines around the world, and the one coming in is not fast enough. There is a limitation on vaccine production. Secondly, the worry that we are experiencing now is vaccine nationalism, where some countries will say “my citizens first before other countries.” But they must remember that we cannot win this war by just winning only one country. COVID-19 will cause inequity; the rich vs the poor, people with technical advantages vs those who against, and there must be a way to equalise this. Export barriers, receiving countries are not ready. Bad logistics and the need to rely on private sectors are also some of the most common problems.

Dr Mark: One of our many problems is, who do we prioritise first? If we have an abundant supply of vaccine, we do not need to ask this question. Intellectual properties must allow many countries to accept technologies to produce vaccines to diminished distribution issue. Everyone altogether should join forces to pressure the government to push force in intellectual properties protection.

What are the benchmarks for EUA approval and what does each country need to prepare to support vaccine coverage?

Dr Kenneth: EUA (Emergency Use Authorization) is the way to regulate accountability of their company which have phase 1 or phase 2 data but has not completed phase 3 data. The company will then present their goods if their product has efficacy and safety. EUA is given for product license or product registration so it can be used as commercial. EUA is only used during a public health emergency.

Dr Mark: EUA is to be used when we have a particular disease around or in this case, a pandemic, and we do not have any exact drug to eradicate this. EUA has an objective to authorise the use of vaccines and save more lives. People sometimes misinterpret it as the government rushing, because they said, in a normal condition, the government will not approve something like this. But actually, for drugs to be approved, they still need to provide extensive data on the chemical components and laboratory data. In Malaysia, all drugs need to have phase 3 clinical data as proof of the concept. We need to convince that the approved vaccine is not an experimental product as is not a product that is used without data and assessment.

Dr Paolo: EUA is established not to rush the process; it is enabling the process because it is an emergency. Transparency of the process is also important. Lack of transparency of certain processes will cause a lack of trust and will make it harder for people to understand the EUA process.

Regarding vaccine hesitancy, what are some of the challenges that you have encountered at the global, national, and community level?

Dr Paolo: There is a lot of discussion about vaccine hesitancy in the Philippines; how do we get people to believe, not only in the vaccines but also the whole direction of the COVID-19 response? That is a very difficult task to do because if you see in the news, there is much propaganda; people are playing politics in the chaos that happened. Those things would have been mitigated if we have trust in the governmental leadership. In the Philippines, there are many problems in how people run the vaccinations programme; not only about the vaccines, but also about the whole COVID-19 response. People seemed to see that nothing happened, or things have gone very slowly.

Dr Kenneth: Vaccine hesitancy is a serious problem. If you look at social media, many anti-vaxxers use “half science” to convince other people, but you need to learn to read between the lines. Always be skeptical about what you read and see, and do not just read the headline. Sometimes, the headline and the content do not match, even in scientific articles.

Dr Mark: Vaccine hesitancy is a major and common problem in our region. We must differentiate between vaccine hesitancy and vaccine denial. Vaccine denial is the anti-vaxxers that actively promote false information, misinformation, and this is the major obstacle in promoting vaccine confidence to the public. Vaccine hesitancy is people who are undecided and unsure. That is okay, and so to address these people, we must be more educating and understanding. When somebody comes to tell you about their doubts about getting the vaccine, we tend to get horrible to them. The truth is, we must understand where the hesitancy is coming from. One of the problems is we are not talking to the public, but we are talking at the public. We need to understand the sources, their concerns of hesitancy and what can we do to support these people to get confidence. Using the power of Google, we can find many strategies to address vaccine hesitancy and types of intervention to convince the population. One of the top recommendations is we must understand the issue of the specific community and define the strategies to address those specific problems.



What is the root of vaccine hesitancy, is it the mistrust of vaccine alone or all the credibility of public health institutions? How do countries overcome these challenges?

Dr Kenneth: There is always a group who are anti-science. But if you look at it, the mistrust of the government is the root. If the government does not apply the rule consistently and comes up with weak arguments, people will start doubting. Social media is also a tool. When people receive news, they automatically believe it and will pass it to their friends. Make sure to be careful on what you see and validate first before sharing it with other people, especially when you are a medical doctor because we carry the weight of the white coat.



Dr Mark: Mistrust always happens, not just in the COVID-19 pandemic situation. Even if we talk about NCDs, mistrusts always happened within the community. We need the cooperation of the public to address the problem of the pandemic. We must recognise that this will not be solved overnight. This is a long-term process, but it starts with being transparent and engaging with the public about medical decisions or public health initiatives that we chose. We need to work not only as a doctor to their patients but also work with them as advocates and people will help us with the public health initiatives.

Dr Paolo: We cannot solve this problem apart from people. At times, we are trying to become more community-oriented, but there are many disempowering narratives. As long as the public see us apart from them, then we need to rethink how we communicate with them. We must keep moving forward and try to change it. About the pseudo-experts that we are battling, they often got away with it, that is why they are always perpetuated. In fact, we should be calling them out, so we can move society forward.

What is the COVAX facility and what are their roles in vaccine nationalism and promoting vaccine diplomacy?

Dr Kenneth: COVAX facility is a third party between Gavi, the Vaccine Alliance, and the WHO. When they see the pandemic coming, they put in preparation ahead of time, getting people to donate money, investing in research development, and studying the vaccine safety and efficacy. The purpose is to get the percentage of people in countries, giving people a level of priority. But not all countries are eligible, there are some criteria from the WHO. For example, the recipient country must have adequate clinical capacity and facility, financial stability, sufficient healthcare workers, etc. for consideration



Dr Paolo: Where lower-income countries cannot produce or buy vaccines on their own, the COVAX facility is here to help them. But still, there are critics against the COVAX facility, one of those is the tiny portion of available vaccines. This thing happened because of the power dynamics that exist between countries and pharmaceutical companies.

Dr Mark: The COVAX facility has a very good intention to try to provide vaccines for vulnerable nations and to cover the frontliners first. The challenge is that we do not have enough vaccine. The root cause of this problem is there is a lack of intellectual properties in many countries, therefore preventing manufacturers to produce vaccines.

How can medical students increase the coverage of vaccinations and should we be treated as frontliners?


Dr Paolo: All medical students are currently doing remote learning in the Philippines, so things can be hard. But you need to be a part of the COVID-19 response and you need to learn about it. You can volunteer for public health initiatives. You need to be in the community and see what the people are experiencing and understand where they are coming from. That is the first step that needs to be taken in order to build vaccine confidence. Do not be burdened by getting them convinced in one blink, because convincing them requires an established relationship. Ask them what they are interested in and what do they want to learn. We must listen and address that context. Conversations are the key to get their trust in a timely manner.

Dr Kenneth: Yes, you should be treated as frontliners. You chose a profession in the area of life-saving, which means that you need to put your life on the frontlines and not just learning. If you are ready to do clinical things, you have to be there for it. If you are scared for your life, then choose another profession. You need to correct the wrong information. You will see many problems in the community, you need to create a solution, innovate outside the box, and contribute altogether with a team to improve healthcare. Challenge your professors to give you more opportunity so you can be a better doctor. This is now the best time to learn about the health system.

Dr Mark: You have a tremendous responsibility to build vaccine confidence. We rely on you. You need to be able to communicate with the public and community. Go to the community and the individual level. Start by listening, ask what they would like to know and what are their concerns. Do not expect someone to be convinced in only 15 minutes after you talk to them. Be patient, they will need many conversations with you before they trust you. Do not make them feel ashamed and do not make new enemies. Collaborate with other students, not just medical students. Leave the old folks to us while you deal with the younger people.

AMSA INTERNATIONAL WEBINAR SERIES

Current View on Haemophilia: Work-Up and Management



As future doctors, we know that this duty requires us to learn for the rest of our lives. We must keep updated on every single piece of information—the newest management, diagnosis, and many more. That is why AMSA International held a webinar about the Current View on Haemophilia Work-Up and Management to commemorate World Haemophilia Day 2021.

The event was held on 17 April 2021 via Zoom, with two lecture sessions and the WHD Competition results announcements on three major categories—which was divided into three presentations for each category's 1st winner. Before the webinar session began, all participants were required to fill in the pre-test questions via Google Form.

It started with the first lecture by Dr Lorraine Marie Item, a Haemato-Oncology Paediatric Consultant at Ospital ng Maynila Medical Center, Philippines, with the topic "Diagnosis of Haemophilia: Early Recognition for a Better Future". In the opening of the lecture, Dr Lorraine gave us pictures of Queen Victoria's family tree—therefore, haemophilia is also called the royal blood disease. Before she discussed further, she recalled again about our body physiology of haemostasis. She also provided examples of cases and interacted with

the audiences via polls. She stated four steps to approach a patient; do the complete history (such as the type and sites of the bleeding, the duration, the childhood history, etc.), physical examination (inspecting the bleeding signs), screening tests for bleeding disorders (such as blood count, platelet count, prothrombin and thrombin time, etc.), and special tests to detect the precise nature of the defect (the mixing studies, the coagulation factor assays, and the platelet aggregation studies). She said that haemophilia could be diagnosed with these events; consistent bleeding, history and physical examination for a coagulation defect, prolonged aPTT and normal PT. The factor activity level can also confirm the diagnosis, establish the type of haemophilia and assess its severity. She also gave some basic information about haemophilia—that haemophilia is the most common serious congenital coagulation deficiency and the most common coagulation deficiency with high treatment cost, and it is an X-linked recessive disorder. In addition, she also showed the genetic inheritance of haemophilia, and patients with haemophilia usually showed some clinical presentations from the beginning of their lives until they are in mature age. Last but not least, Dr Lorraine also discussed the principles of management—that we need to remember to prevent future bleeding (such as lifestyle modification and avoiding dangerous activities) and also treat early acute bleeds within two hours.



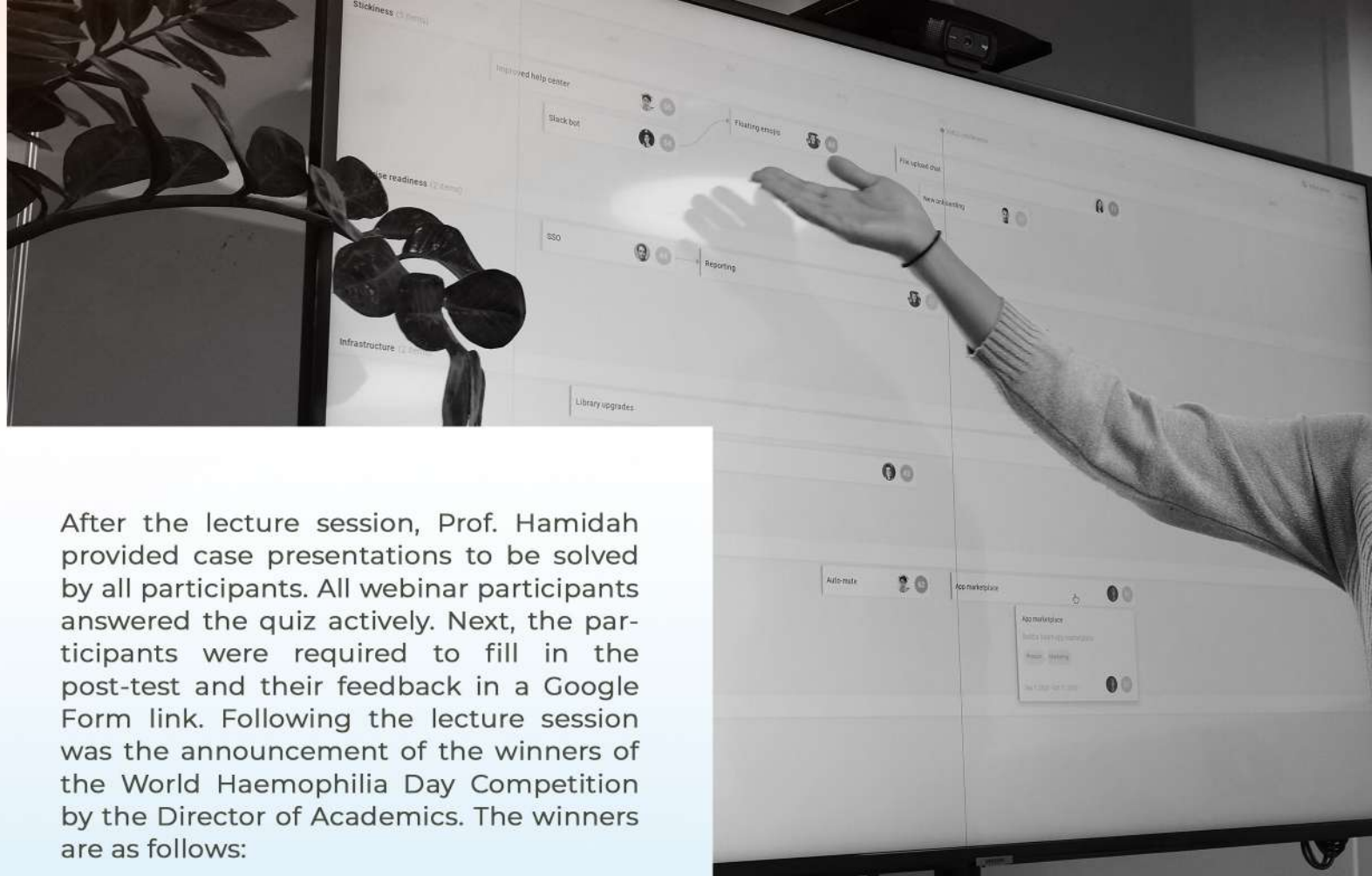
The second lecture was explained by Prof. Hamidah Alias, a Haemato-Oncology Paediatric Consultant at Department of Paediatric, UKM Medical Centre, Faculty of Medicine, The National University of Malaysia; with the topic "Perspective of Living with Haemophilia: Current Treatment and Patient/Caregiver Education." Prof. Hamidah first explained about the overview of haemophilia itself, where haemophilia is a rare X-linked congenital bleeding disorder characterised by a deficiency of coagulation factor VIII called haemophilia A, and coagulation factor IX called haemophilia B. Haemophilia A is more common than haemophilia B, and any presence of joint bleeding in very young age children is a key indicator for severe haemophilia. The most common problem is recurrent joint hemarthrosis, which can cause synovial inflammation and can lead to progressive joint deformity and permanent disability.

Next, Prof. Hamidah explained the treatment goals and options of haemophilia. The treatment goals of haemophilia are to protect the patients from bleeding, reduce pain and musculoskeletal damage, and improve the overall health and quality of the patients' life. Management of haemophilia itself consists of five important points. First, the management should encompass family-centred care provided by multidisciplinary experts and an experienced team involved in the diagnosis, treatment, and complication management. Second, procurement of the missing clotting factors, which can be Factor VIII and Factor IX, where all countries should maintain a sustained availability of clotting factor concentrates (CFCs) by establishing a national tender system for the procurement and distribution of haemophilia therapies.



Third, deliver standard care for all severe haemophilia patients by giving a CFCs prophylaxis or other haemostasis products to prevent bleeding in young children (before 3 years old). When selecting any haemostasis products, evaluation of product safety, quality, purity, viral inactivation, and efficacy are required. There are many types of haemostasis products, including Clotting Factor Concentrates (CFCs), bypassing agents, cryoprecipitate and FFP, desmopressin, tranexamic acid, factor VIII mimetic (emicizumab), anti TFPI antibodies (concizumab), and anti-thrombin inhibitor (fitusiran). So far, CFCs are the treatment of choice in patients with haemophilia. CFCs can be administered as a prophylaxis to prevent joint and muscle damage, can be administered in demand when bleeding occurs, and can be used for surgery or treatment of severe bleeding which require prolonged replacement therapy.

Fourth, home therapy and self-management monitored by the HCC team are important to improve the quality of life of the patients. Home therapy includes recognition of bleeds and complications, first aid measures, dosage calculations, CFCs storage and preparation, aseptic techniques, injection and infusion skills, proper storage and disposal of needles or any sharp objects, and blood spills handling. Last but not least, systematic surveillance for inhibitors which encompass inhibitor screening is required. The earlier the management, the better the outcome will be. Assessing outcomes of patients can be done in three ways, including assessment of annual bleeding rate (ABR), annual haemophilia joint health scores (HJHS), and ultrasound of knees, ankles, and elbows when feasible.



After the lecture session, Prof. Hamidah provided case presentations to be solved by all participants. All webinar participants answered the quiz actively. Next, the participants were required to fill in the post-test and their feedback in a Google Form link. Following the lecture session was the announcement of the winners of the World Haemophilia Day Competition by the Director of Academics. The winners are as follows:

SCIENTIFIC PAPER

First Place

Kohar K, et al

AMSA Indonesia

Recombinant versus Plasma-derived Factor VIII Concentrates on Inhibitor Development in Previously Untreated Patients with Haemophilia: A 2021 Update of Systematic Review and Meta-analysis

Second Place

Penantian RM, et al

AMSA Indonesia

Exploring the Efficacy and Safety of Factor VIII-Mimetic Function of Humanized Bispecific Antibody (Emicizumab/ACE910) in Classic Haemophilia Patients with or without Inhibitors: A Systematic Review and Meta-Analysis

Third Place

El Milla NF, et al

AMSA Indonesia

Efficacy and Safety of Emicizumab for Treatment in Mild Haemophilia: A Systematic Review

SCIENTIFIC POSTER

First Place

Milla CC, et al

AMSA Indonesia

Oral Bioencapsulated Coagulation Factor IX Fused with Cholera Toxin Beta-Subunit Protein as a Promising Immune Tolerance Induction Therapy for Haemophilia B: A Systematic Review

Second Place

Asyura MM, et al

AMSA Indonesia

Effectiveness of Low-dose FVIII Prophylaxis as an Alternative Management in Resource-limited Settings for Haemophilia A in Paediatric Population: A Systematic Review and Meta-analysis

Third Place

Vighneshwara DV, et al

AMSA Indonesia

Effectiveness of Low-dose FVIII Prophylaxis as an Alternative Management in Resource-limited Settings for Haemophilia A in Paediatric Population: A Systematic Review and Meta-analysis



Congratulations to all the winners of the World Haemophilia Day Competition! We hope that this event could motivate us all to do more research and action towards our society in the future.

PUBLIC POSTER

First Place

Dyson NG, et al
AMSA Indonesia

"TREAT THEM SPECIAL": A Practical Guide for Parents To Educate Their Children with Haemophilia

Second Place

Firdaus IZ, et al
AMSA Indonesia

Safer Hemophilia with #HFA (Haemophilia for All)

Third Place

Kurnia K, et al
AMSA Indonesia

Haemophilia: Reject The MYTHS, Remember The FACTS



Written by:
Stefanie Belinda
eNewsletter Editorial Board
2020/2021



Adeela Sandria Fitri Aini
Chief Editor of eNewsletter
2020/2021



AMSA International x AMBOSS

Lecture Series:

Cardiology and Respiratory Block Event Report





Ananya Bhasin
eNewsletter Editorial Board
2020/2021



Satria Angga Widitama
eNewsletter Editorial Board
2020/2021

The AMSA International x AMBOSS Lecture Series - Cardiology and Respiratory Block was held on 10 April 2021. Three topics were covered under this session – “Arrhythmias, Hypertension, and Heart Failure.” The session was opened by Cher Pin So, the Director of Marketing and Sponsorship 2020/2021 and the first topic, “Arrhythmias” was delivered by Koravich Lorlowhakarn, a 5th-year medical student from Chulalongkorn University, Thailand. It was attended by over eighty participants from various AMSA International chapters and lasted for about two hours from 16:20 (GMT+8) via Zoom meeting.

The first half of the session covered multiple topics like electrocardiogram (ECG) and its application in detecting arrhythmias, how to read ECGs, tachycardia, bradycardia, Wolff- Parkinson White Syndrome, inter-nodal block, etc. in detail. The participants were enthusiastic to respond to the speaker's questions and actively participated in ECG reading activities.

The physiology, onset, rhythm, changes in P wave and QRS complex changes (ECG changes) of multiple conditions like sinus tachycardia, atrial flutter, atrial fibrillation, atrial tachycardia, junctional tachycardia, atrioventricular re-entry tachycardia (AVRT), and AV nodal re-entry tachycardia (AVNRT) were explained in detail using flowcharts, diagrams, and notes by AMBOSS. After every session, the speaker asked the participants to read the ECG and identify the condition or calculate the heart rate. This was followed by a video of Wolff- Parkinson pattern and syndrome by AMBOSS that cleared these concepts, especially re-entry circuit, ECG correlation, and treatment of the conditions. The last part of the first topic was Mobitz Type I and II internodal blocks.

This session was highly appreciated by the participants and we received amazing feedback for the same. We were thankful to the speaker for their method of presentation and enthusiasm in clarifying the doubts of the participants.

The lecture of Topic 2 discussed the topic “Hypertension and Heart Failure” delivered by Tutor Vedant Shukla, a Junior Doctor from Sir JJ Group of Hospital, Mumbai India.

The whole session highlighted the importance of a comprehensive and holistic approach to diagnose hypertension and heart failure as a medical practitioner. It thoroughly covered hypertension and heart failure from their definition, epidemiology, pathophysiology, criteria diagnosis, signs and symptoms, to the management of both diseases.

There are several important points while taking history to notice:

1. Age, since older people above 40 years of age have an increased risk;
2. Sex, where epidemiologically, more men have cardiac condition than women; and
3. Dietary history, where salt heavy diet could affect the onset of hypertension.

Other clinical clues:

Clinical feature	Cause
Vascular disease, Renal bruit	Renovascular disease, including renal artery stenosis
Episodes of sweating, headache and palpitation	Pheochromocytoma
Hypokalemia	Primary aldosteronism
Cushingoid facies, central obesity, abdominal striae H/O chronic glucocorticoid use	Cushing's syndrome
Low-volume femoral pulses with radio-femoral delay	Coarctation of aorta
B/L palpable kidneys	Adult polycystic kidney disease.



The main goal of treatment and management is to reduce the incidence of adverse cardiovascular events (e.g. CAD), stroke, and heart failure. The target of treatment is to lower blood pressure under 140/85 mmHg, while in diabetic and renal dysfunction patient, it is under 130/80 mmHg. First-line management includes lifestyle modification by cessation of smoking and alcohol consumption along with dietary modification to reduce salt intake, saturated fats, and incorporate high fibre diets. Pharmacological therapy is considered as the second-line management, including ACEI or ARBs, beta-blockers, calcium channel blocker, and diuretics. The mechanism of action, pharmacological properties, and an indication of each drug used as therapy and their interaction with each other were also explained.


The participants' enthusiasm was relatively high. They were eager to be involved during the lecture session. Even though the question-and-answer session was very limited, a lot of participants tried to ask either by directly unmuting themselves or utilising the chatbox. The session was closed by Cher Pin So, the Director of Marketing and Sponsorship of AMSA International at 17:21 (GMT +8)

SPECIAL EPISODE: AFTERNOON TEA WITH AMSA

Afternoon Tea with AMSA is returning! This time, we collaborated with our new partner, One Health Lessons to discuss the "One Health" topic. On 15 May 2021, we conducted an Instagram Live session with Dr Deborah Thomson from the United States, the Founder and President of One Health Lessons, and Doris Ma from Hong Kong as the Lesson Leader and Ambassador Programme Intern of One Health Lessons. This session was moderated by Vellia, the Vice Overall Chairperson External, and Nibras, the Liaison Officer to Medical Students' Organisation.

First, Dr Thomson explained a brief overview about one health. One health consists of teamwork and integration involving people with different backgrounds to solve a complicated problem such as the pandemic. The concept of one health itself is the interconnection between our health and the environment and is now a global movement. Next, Doris explained about the sectors which one health approaches. Besides humans, healthcare workers, animals, and the environment, one health also involves people in policy, environmental advocates, lawyers, teachers, and in reality, one health involves many different areas with huge scopes.

Dr Thomson also explained the main goal of the entire one health concept, which is sustainability. People tend to overuse this term, but that is what one health really is. One health fits into all Sustainable Development Goals (SDGs) by the WHO. For example, we can take a look at number 17 which is the "partnerships for the goals." The purpose of One Health Lessons is to improve one health education and to inspire the next generation to maintain the established connection.



Dr Thomson and Doris also explained about their Lesson Leader's Programme. To reach the main goal of becoming a Lesson Leader, the starting point begins with a training programme to learn the skills needed to achieve One Health. In the second step, we will need to watch a pre-recorded virtual lesson video on YouTube. For the final step, we will need to teach our own one health lesson in our own virtual class. After we finish all the steps, we will get a certificate and be a certified one health teacher. Why is this programme important? In medical schools, we are learning a whole new language called "medicine" and we need to translate it to the public. It is hard to communicate our language to patients, friends, and family if we do not know how to translate. The Lesson Leader's Programme will help you learn to translate the complicated language to the public and to the students we teach our lessons to. This shows that to achieve one health, strong communication skills are very important. From the physician's perspective, we must make sure that there is no misinformation when giving education to patients.

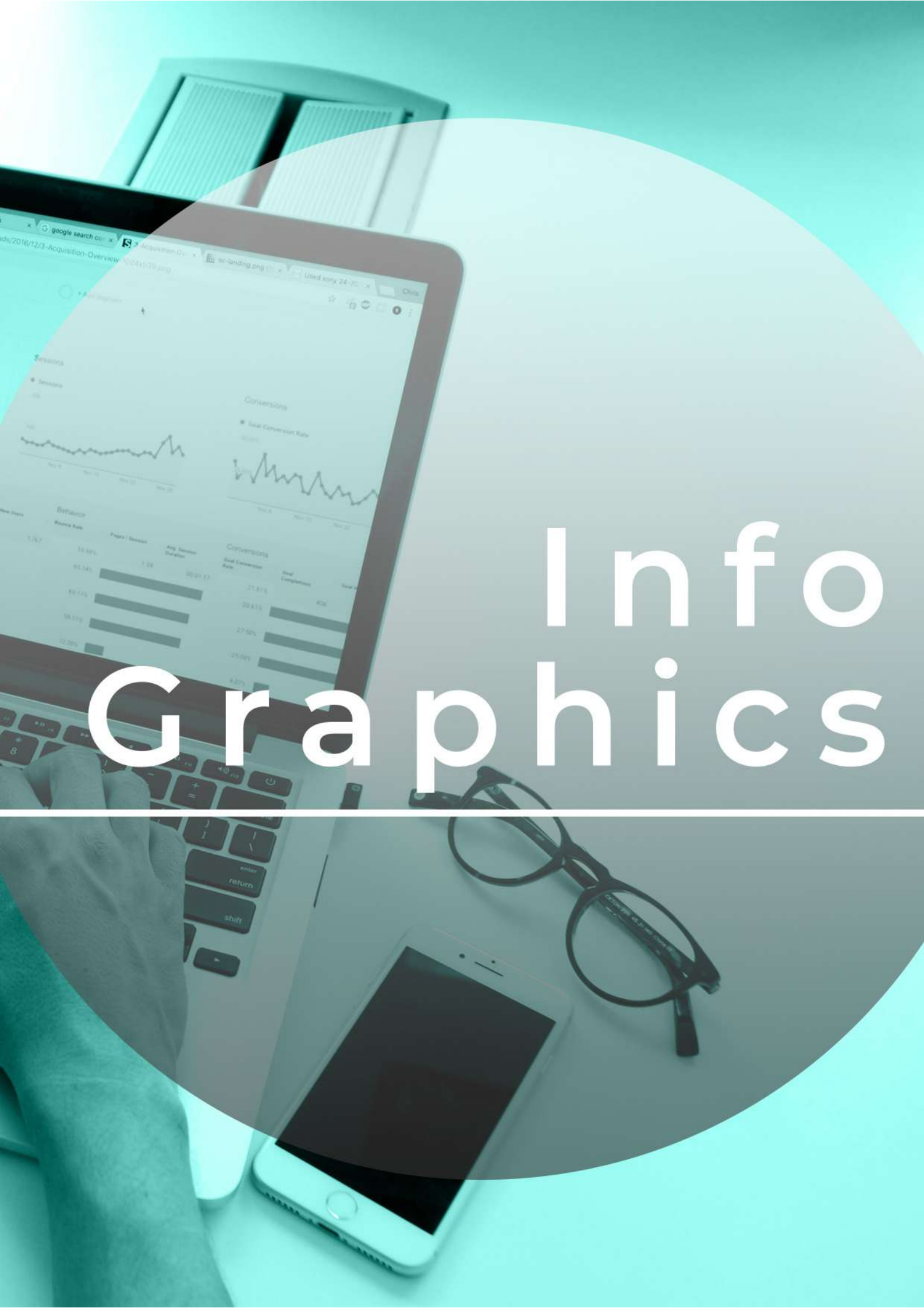
So, how can we as medical students contribute to achieving one health? We can achieve it by simply having a conversation outside our medical bubble, which may help to increase our knowledge and insights because we get to learn a ton from other professions and know their differences and similarities to ours. We also need to be aware of our actions and how our actions affect others. This will also be put to use during our clinical years where we should not just be looking at our patients, but also at their environment, where they came from, and what they were exposed to. Having a conversation to exchange our point of view is always good, but it is never enough if we do not take any action. We can always raise awareness of one health and educate on what to do to the patients, friends, and family.

To learn more, you can visit:

Instagram: [@onehealthlessons](https://www.instagram.com/onehealthlessons)

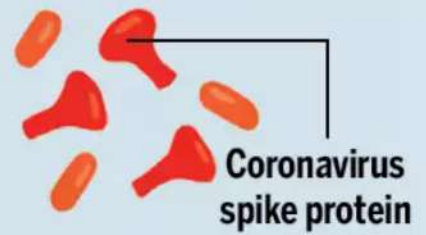
[Linkedin.com/in/deborahthomsondvm](https://www.linkedin.com/in/deborahthomsondvm)





Info Graphics

Protein subunit
(Novavax)



Edward Jenner was considered the founder of vaccinology in the West in 1796 after he inoculated a 13 year-old-boy with vaccinia virus (cowpox) as a natural vaccine against smallpox by arm-to-arm inoculation. This type of heterologous vaccine is still produced currently e.g. BCG vaccine made from *Mycobacterium bovis* to protect against tuberculosis.

Thomas Francis, Jr., MD and Jonas Salk, MD served as lead researchers at the University of Michigan to develop the first inactivated flu vaccine using fertilised chicken eggs with support from the U.S. Army.

Yasumura and Kawakita at the Chiba University in Chiba, Japan developed Vero cells lineage from isolated kidney epithelial cells extracted from an African green monkey for vaccine production.

1796



26 OCTOBER 1885

Pasteur reported to the French Academy of Science, understood the production of live attenuated vaccines bypassing rabies virus from dogs to dissimilar species (rabbits) and grow in animal nerve tissue, but there was a risk of encephalitis contamination.

1940S



1940S

1st polyvalent (or multivalent) vaccine was designed to immunise against two or more strains of the same microorganism, or against two or more microorganisms i.e. pertussis & diphtheria toxoid.

27 MARCH 1962

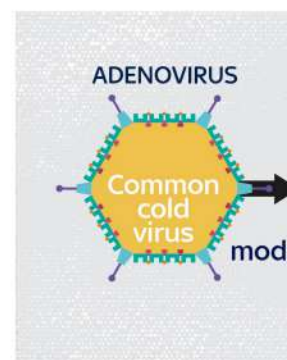


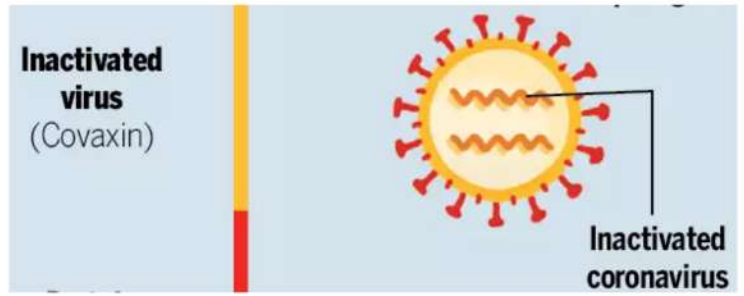
1971

Screening technology for HBV had been available and was routinely used in vaccine production to prevent contamination as in 1971. In 1942 Theiler's yellow fever vaccine Hepatitis B contamination outbreak.

A BRIEF HISTORY OF

VACCINE

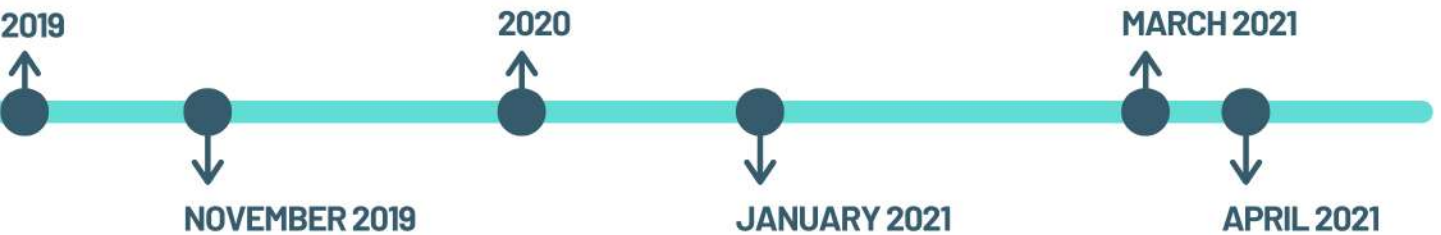




The world's 1st recombinant hepatitis B vaccine (Recombivax HB by Merck) was licensed on 23 July 1986 using recombinant DNA technology, a hepatitis B surface antigen subunit vaccine. Same as the principle for producing Hepatitis B vaccine and Pertussis vaccine, 2 protein subunit vaccines (EpiVacCorona, Russia) and RBD-Dimer, China) were produced for COVID-19, but protection was lower than mRNA vaccine.

Since the 1st discovery in 1953 in plants, mRNA after 67 years have been first formulated into 2 mRNA vaccines against COVID-19 (Pfizer-BioNTech; Moderna) with the highest efficacy and safety profile, although headache and fever are more common after 2nd dose. They are normal immune reactions. Owing to limited pregnancy data, it's generally not recommended in 1st trimester during organogenesis of the foetus, but other than that is still recommended. Still, both require stringent cold chain storage that may be limited in developing countries.

Five conventional chemically inactivated whole virus vaccines: WIBP-CorV & BBIBP-CorV (China Sinopharm), CoronaVac (China SinoVac), Covaxin (India), and CoviVac (Russia) are produced for COVID-19 with the advantage of easy storage conditions 2-8°C just as normal influenza vaccine.



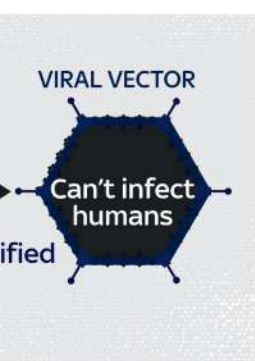
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Since the 1970s, the idea of using a viral vector to deliver a target gene was 1st proposed, after 59 years, the world's 1st viral vector vaccine, rVSV-ZEBOV (ebola vaccine) was approved for medical use in the European Union.

Since then, 4 adenoviruses (common cold virus) vector vaccines for COVID-19 are marketed: Sputnik V (Russia), the Oxford - AstraZeneca, Convidecia (China), Johnson & Johnson (US), but rare cases of cerebral venous sinus thrombosis have been reported.

There is misinformation and anti-vax hesitancy against mRNA vaccine, even amongst healthcare professionals wait after 1st round of vaccination and see if there are potential side effects, but science actually proves that mRNA will alter our genome and is self-degrading without long-term effects.

Still, the duration of the immune effect of current COVID-19 vaccines are unknown and a booster dose against mutant variants or annual vaccination may be needed.



STILL STRUGGLING? WHAT & WHY COVID-19 VACCINE?

COVID-19 is an infectious illness that usually starts suddenly with a cough, sore throat and fever. It is caused by a new coronavirus which was first identified in 2019. It is mainly transmitted by respiratory droplets, direct contact and indirect contact. The incubation period for COVID-19 is generally 14 days. Anyone can be infected.



THE 3 VACCINES IN MACAU

			
Origin	Germany	United States	Beijing, China
Nature	mRNA vaccines	Replication-defective adenovirus vector vaccines	Inactivated vaccines
Efficacy*	Over 90%	Around 70%	Around 80%
Target Group	Tentatively set as ≥16 years old	Tentatively set as ≥18 years old	For individuals ≥60 years old, with - good health condition - high risk of exposure

(recommend to consult a doctor of your current health status beforehand)
* Interim results of clinical trials

Administration Process



2 doses, 4 weeks apart



Administration site: Deltoid

Why Vaccination?

- Reduce infection & death
- Establish herd immunity

PRECAUTIONS!!!

Read COVID-19 vaccination



Report allergy history



AFTER

Inform any discomfort



30 min



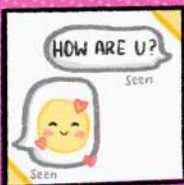
Stay for observation



Rest & drink more water

	BioNTech	AstraZeneca	Sinopharm
Very Common (>10%)	- Injection site pain and swelling - Fatigue, chills, fever - Joint pain, muscle pain	- Injection site pain or itching - Fatigue or malaise - Chills or feeling feverish - Headache, nausea - Joint pain or muscle pain	- Injection site pain - Headache
Common (1-10%)	- Redness at the injection site	- Swelling or redness at the injection site - Fever (> 38 °C) - Vomiting or diarrhoea	- Fever, fatigue - Muscle pain, joint pain - Nausea
Uncommon (>0.1-1%)	- Vomiting or diarrhoea - Weakness - Extremity pain - Lymphadenopathy	- Drowsiness or dizziness - Loss of appetite - Lymphadenopathy - Excessive sweating - Itchy skin or rash	- Itching at the injection site & non-injection site - Skin rash - Loss of appetite, vomiting
Rare (<0.1%)	- Acute peripheral facial palsy (Bell's palsy)	- Hypersensitivity - Anaphylaxis	- Acute allergic reaction (non-serious) - Skin rash at non-injection site - Lymphadenopathy

WE CAN WIN AGAINST COVID-19!



Show more care



Wear a mask



Maintain personal hygiene



Social Distancing

REGISTER NOW!!!



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Health

QUESTIONS

Thromboembolic After Vaccination What Do We Know So Far?



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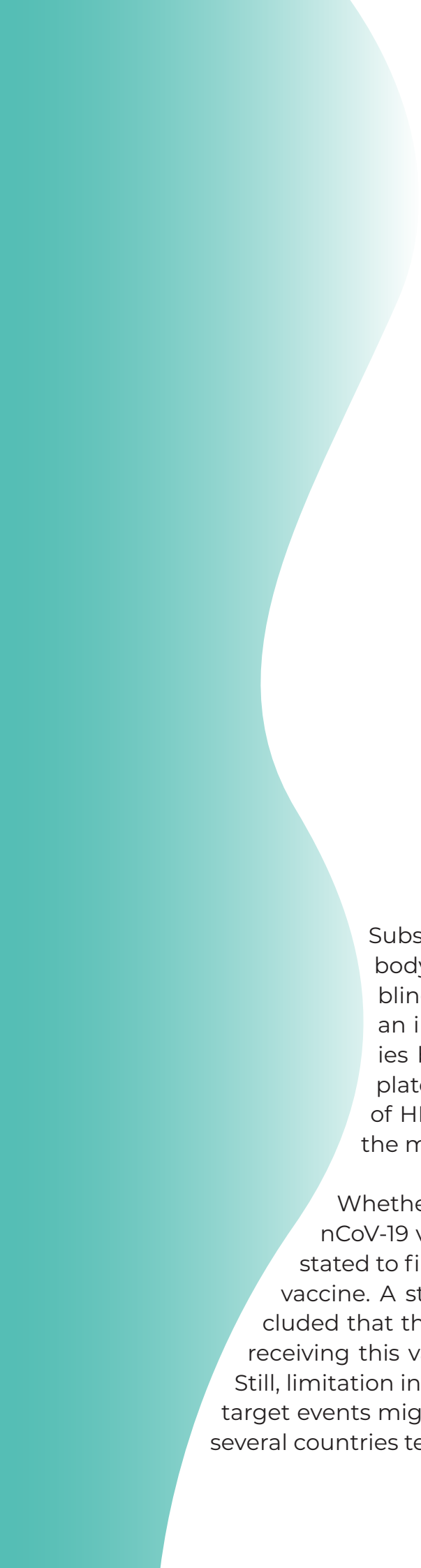
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Since December 2019, the SARS-CoV-2 virus spread around the globe and caused a COVID-19 pandemic. The crisis threatened millions of lives, prompting the pharmaceutical industry to develop novel anti-viral drugs and potential vaccines. Many countries dived in such domain and five vaccines against COVID-19 were approved by the European Medicines Agency (EMA) thus far. However, to combat the rapidly deteriorating condition of COVID-19, governments permitted the distribution of the vaccine under emergency use. The safety and effectiveness of those vaccines were therein still under current controversy.




ChAdOx1 nCoV-19 vaccine (AstraZeneca) is a non-replicating adenovirus vector vaccine containing the SARS-CoV-2 virus spike protein gene. The vaccine entered cells and produced spike protein, stimulating T cells to attack the virus-infected cell. Urgently, the vaccine was authorised by the British Medicines and Health Products Administration and EMA respectively on 30 December 2020 and 30 January 2021. The convenience in storage and transportation established its global distribution. The vaccine was indicated for over 18 years of age and required two doses with a 12-week interval. Individuals with a history of severe allergic reaction and pregnant or breastfeeding female were not recommended for vaccine injection due to insufficient safety evidence. Common adverse events included but were not limited to local swelling or redness at the injection site, fatigue, headache, muscle pain, arthralgia, fever, nausea, and vomiting. These symptoms were reported to be predominantly self-limited within a few days.

Nevertheless, by February 2021, a series of unusual thromboembolic events with concomitant thrombocytopenia was reported days or weeks after injected with the ChAdOx1 nCoV-19 vaccine. A 42-year-old woman presented with headache and worsening consciousness 1 week after vaccination. The platelet count was 14 000 per cubic millimetre. Venous thromboembolism was identified in the transverse and sigmoid sinuses. Albeit being treated with dalteparin, methylprednisolone, and intravenous immune globulin, the patient expired two weeks later due to intracranial haemorrhage and cerebral swelling [1]. Among 5 million recipients of the ChAdOx1 nCoV-19 vaccine in Europe, a total of 30 thromboembolic events had been reported by 10 March 2021 [2]. Disseminated intravascular coagulation and cerebral venous sinus thrombosis were encountered, nearly two-thirds of which occurred in young and middle-aged women [3].



Subsequent studies suggested the platelet-activating antibody mediates the thrombotic thrombocytopenia, resembling heparin-induced thrombocytopenia (HIT) [4]. HIT is an immune-mediated disorder and is caused by antibodies binding to the heparin-PF4 complex, which activates platelets and initiates the thrombotic cascade. Up to 50% of HIT cases were associated with thromboembolism, and the mortality rate was high [5,6].

Whether the blood clot directly results from the ChAdOx1 nCoV-19 vaccine remained controversial. AstraZeneca and EMA stated to find no elevation in the risk of blood clots caused by the vaccine. A study based on Denmark nationwide population concluded that the thromboembolic events were not elevated in those receiving this vaccination as compared with the general population. Still, limitation in the cohort characteristics and underestimation of the target events might confound the statistics [2]. Under such uncertainty, several countries temporarily halted the injection.



On 18 March 2021, EMA's safety committee announced the vaccine may be related to very rare cases of thromboembolism but did not escalate its overall risk. The unusual blood clots with low blood platelets ought to be listed as a rare side effect. Overall, the benefits of the vaccine still outweigh the potential risk.

To clarify the relationship between vaccination and blood clotting, further prospective studies with real-world data are warranted. Additionally, detailed elucidation on the pathophysiologic mechanism of thromboembolism is mandatory to assure the safety profile of this vaccination. The current bottom line is those high-risk subjects are advised to postpone vaccination until further evidence is available [7]. To emphasise, individuals with the otherwise clinical background are still urged to receive the vaccination, regardless of the brand. Only with the adequate coverage of vaccination will the pandemic be better managed.

Acknowledgements: The authors would like to acknowledge all those frontline medical personnel and the logistics in combating this pandemic.

Disclosures: The authors declare no conflicts of interest.

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Vaccine Hesitancy



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Our advice? Believe in these good people. Trust in the science behind the vaccine. Get the shot when your turn comes.

Vaccine hesitancy was listed among the top ten priorities in 2019 by World Health Organization (WHO). Vaccine hesitancy –the reluctance or refusal to vaccinate despite the supply of vaccines–threatens to reverse progress made in tackling vaccine-preventable diseases (VPDs). Vaccine hesitancy is pervasive, affecting a ¼ to 3rd folks of US parents. Clinicians report that they routinely receive requests to delay vaccines, which they routinely acquiesce.

Vaccine hesitancy is also known as anti-vaccination or anti-vax. Individuals who adjust to this view are generally known as “anti-vaxxers”, the term that envelops out and out refusal of vaccines and delaying vaccinations, accepting vaccine but remain uncertain about their utilisation, or using certain vaccines yet not others. Arguments against vaccination are contradicted by overwhelming scientific consensus about the safety and efficacy of vaccines.

The World Health Organization views vaccine hesitancy as one of the top ten global health threats.

Vaccine rates vary by state and locale and by a specific vaccine, and vaccine hesitancy results in personal risks and in the failure to achieve or sustain herd immunity to protect others who have contraindications to the vaccine or failed to generate immunity to the vaccine.

Decision making around vaccination entails a complex mixture of cultural, psychosocial, spiritual, political, and cognitive factors. The reasons for vaccine hesitancy fit into 3 categories:

Lack of Confidence

in effectiveness, safety, the system, or policymakers

Complacency

perceived low risk of acquiring VPDs

Lack of Convenience

in the availability, accessibility, and appeal of immunisation services, including time, place, language, and cultural contexts

According to recent Canadian surveys, 87% of parents were concerned about the potential side effects of vaccines and 38% believed that a vaccine could cause a disease that it was supposed to prevent. Canadian parents whose children were not immunised cited the lack of perceived necessity of vaccines (28%), concerns regarding Canadian Family Physician.

The attitudes toward vaccination should be seen on a continuum ranging from active demand for vaccines to complete refusal of all vaccines. Vaccine-hesitant individuals are a heterogeneous group within the middle of this continuum. Vaccine-hesitant individuals may refuse some vaccines but comply with others, they will delay vaccines or accept vaccines according to the recommended schedule but be unsure in doing so. Despite the growing number of articles referring to vaccine

hesitancy published in recent years, there are some discrepancies among publications about what exactly falls under the umbrella of “vaccine hesitancy”. The expression can be used to refer to a “gap in parental knowledge” or refer to “reflection and deliberation about the benefits of specific vaccines.” It is hard to have a transparent picture of vaccine hesitancy in the population level because hesitancy is not directly associated with vaccine uptake (as vaccine-hesitant individuals may accept all recommended vaccines in a timely manner yet still have significant doubts in doing so). In addition, hesitancy can vary according to the vaccine involved (one can be hesitant regarding the flu vaccine but agree to all other vaccines), with newer vaccines usually engendering more hesitancy. Thus, caution is needed when attempting to draw an overall image of vaccine-hesitant individuals’ characteristics.

Social science research has shown that vaccination decision-making should be understood in a broader socio-cultural context. Vaccination is part of a “wider social world” which means that different factors (past experiences with health services, family histories, feelings of control, conversations with friends, etc.) can influence the decision-making process regarding vaccination. Vaccination is simply one decision of the many that parents are faced with.

The Role of Media and Communication

The media have played a role in keeping vaccination scares alive, even in the face of strong evidence of the safety and effectiveness of vaccines. Indeed, many scientific studies have demonstrated the negative influence of media controversies on vaccine uptake. The Internet has also offered a chance for vocal anti-vaccination activists to diffuse their message. Many consider that the omnipresence of anti-vaccination content on the World Wide Web has contributed to broader and faster dissemination of rumours, myths and “inaccurate” beliefs regarding vaccines that adversely affect vaccine uptake. Indeed, even if health professionals are still frequently consulted by most individuals with health concerns, the Internet has become an essential source of information, with Web 2.0 functions that allow users to create and share content using social networks (such as Facebook, Twitter, YouTube, or Wikipedia) where they can share their personal experiences of vaccination.

These narratives add another dimension to health information: an individual and typified perspective on vaccine-preventable illness, immunisations, and their capability (often negative outcomes). Indeed, studies reviewing the content of websites or social networks concerning vaccination have shown that information is of variable quality which is inexact and negative content is predominant.

Despite concerns regarding the increasing influence of the Internet on vaccine acceptance, there are only a few data examining exposure to anti-vaccine websites on vaccine decision-making.

The Role of Public Health and Vaccine Policies

Vaccination programmes were commonly recognised as one of the most cost-effective public health interventions and the arrival of new vaccines was almost always welcomed by public health decision-makers and clinicians. The increase in the number of vaccines has resulted in differences regarding the addition of new vaccines in a regular programme.

To accomplish high vaccine coverage, some countries have introduced laws that require children to be vaccinated before school entry.

Public health has a role to play in communicating adequately with the population. High-quality vaccine safety surveillance is in place in developed countries. However, the strength and reliability of these frameworks are not well-understood by the population or even by some health-care providers. Inaccurate information regarding both vaccine safety and therefore the process resulting in vaccine licensure and inclusion in universal programmes circulates widely, leading to significant problems for public health clinicians, policymakers, and patients.

The Role of Health Professionals

Health professionals' knowledge and attitudes about vaccines have previously been shown to be a crucial determinant of their vaccine uptake, their intention to recommend the vaccine to their patients, and the vaccine uptake of their patients. Health professionals are generally strong supporters of vaccination.

However, several of them might be categorised as vaccine-hesitant. Vaccine hesitancy can induce strong emotional responses in health professionals, ranging from worries that trust in the relationship with patients will be endangered due to medico-legal concerns.

Health professionals are the foremost trusted source of information on vaccination for the majority of patients, many tools and tips are presented to assist providers in their discussions with vaccine-hesitant or vaccine-refusing patients.

Knowledge/Information About Vaccination

Many studies have shown that parents who prefer to vaccinate their child generally have limited knowledge of vaccination and vaccine-preventable diseases compared to parents who refuse to vaccinate. These studies indicated that a parent's choice is often based on conformity – or following what is recommended – rather than based on specific knowledge about the vaccine or vaccine-preventable disease.

Moral or Religious Convictions

Vaccination refusal is at times connected with philosophical beliefs or moral convictions regarding wellbeing and immunity, for example, an inclination for “natural” over “artificial” medicines.

Opposition to vaccination based on religious motives dates back to the introduction of vaccination and can be explained, at least partially, by the idea that vaccination is not congruent with religious considerations regarding the origin of illness, the necessity for preventive action and the search for a cure.

COVID-19 Vaccine Hesitancy

A significant portion of the population may experience vaccine hesitancy of a new COVID-19 vaccine, which poses dangers to both the individual and their community, since exposure to a contagious disease places the person at risk, and individuals are far more likely to spread the disease to others if they do not get vaccinated. Numerous people are doubtful, and without the healthcare community, speaking with one voice has led to distrust. Experience from the influenza vaccines have shown vaccine acceptance has not been optimal, and this new vaccine, even though it is not approved, is already showing layperson scepticism compounded by political influences.

Strategies for addressing vaccine hesitancy:

- Discuss reasons for vaccine hesitancy.
- Answer the most common questions and concerns surrounding vaccines.
 - Will too many vaccines overwhelm the immune system?
 - Isn't it better to space vaccines out?
 - Does the MMR vaccine cause autism?
 - Are there harmful ingredients in vaccines?
 - Isn't it better to get a natural infection?
- Apply motivational interviewing strategies to address vaccine hesitancy.
 - Asking open-ended questions.
 - Reflective listening.
 - Eliciting pros and cons of change.
 - Inquiring about the importance and confidence of making a change.
 - Summarising the conversation.
- Vaccination campaigns targeting precarious populations.
- National immunisation campaign against H1N1 pandemic
- Vaccination campaigns for medical staff
- Immunisation programmes targeting children.

If declination or delay:

Let the patient know you will offer it again. Many parents who decline at first will vaccinate later, so provide:

- Tips in case of declination or delay
- Offer reading material.
- Try gaining confidence.
- Let them know that it is still okay to start over.

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Vaccination Hesitancy:

**What Can We
Trust In this
COVID-19 Era?**

On 12 January 2020, the World Health Organization (WHO) named the new coronavirus as 2019-nCoV, which turned out to be the causative pathogen of a worldwide outbreak [1] in the whole of 2020. Though the origin of the disease has not been determined, some measures were accepted to interrupt or reduce the spread of 2019-nCoV all over the world in the past year.

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For example, handwashing [2,3] is now known to be the most important method of reducing the transmission of epidemic-causing respiratory viruses. Wearing masks as a public health intervention may also help break the transmission link with apparently healthy infectious sources [4-6]. In addition to handwashing and wearing masks, the most direct and effective way to prevent the spread of the disease is to take protective measures such as improving personal hygiene, wearing a medical mask, having enough rest, maintaining ventilation, and avoiding crowds [1].

Thus, personal prevention is now not proper as a long-term measure for a country, for dealing with the current crisis is not the most important way. Since this pandemic has happened for a year, most governments are considering other long-term preventions for herd immunity through vaccination. How do the governments get ready to ensure large-scale, equitable access and distribution of a COVID-19 vaccine when a safe and effective one becomes available? [7] In many vaccination programmes, vaccine hesitancy and misinformation present substantial obstacles to achieving coverage and community immunity in many countries [7]. Concern about vaccine hesitancy is growing worldwide [7]; in fact, WHO identified it as one of the top ten global health threats in 2019 [7].

Take China for example, when asked whether “You would accept a vaccine if it were recommended by your employer and was approved safe and effective by the government,” considerable variation by country, with China again having the highest proportion of positive responses (596 of 712, 83.7%) and the lowest proportion of negative responses (26 of 712, 3.7%) [7]. In China, the highest proportion of positive response may attribute to the severe restrictions and laws made by the government [8]. Detailed vaccine information such as manufacturer and whether the vaccine is legal or not can all be searched on the online platform developed by Tencent Health, which is open for the volunteers and public of all provinces to apply and make an appointment [8].

Although China has the highest proportion of positive responses to vaccination, there is still a proportion of negative responses due to vaccine hesitancy. Vaccine hesitancy is a complex public health issue in China. In the last decade, vaccine scandals and a series of reports about the serious side effects of vaccination have increased vaccination hesitancy and distrust in the country's immunisation programme [9,10]. China has experienced various negative events associated with vaccine malpractices and scandals that have resulted in the public losing confidence in vaccines [9,11], which perhaps is also implicated in this study as a considerable proportion reported concerns regarding the possibility of fake or faulty COVID-19 vaccines [9,11]. Even though the government is getting more and more efforts complete to make sure the quality of vaccine is all under registration, the reasons and barriers against mass vaccination can still be classified into the following reasons.

The first point worth mentioning is the large population; now that China has the largest population around the world, to regulate every citizen and educate for the merits and safety to the public is a huge challenge [8]. Second, the process of the COVID-19 vaccine test is not long enough to prove any adverse effects, which mostly affect some people, especially the medical front liners to fully trust the vaccine [8]. Thirdly, though some provinces provide free vaccination to encourage medical frontline volunteers to vaccinate, those who are not medical front liners still have to pay for the vaccine, and combined with the second viewpoint, this turned out to be like a bet for some volunteers who may initially have the willingness to vaccinate [8]. Last but not the least, the storage of vaccines is also one barrier, which the government now is trying to solve by producing more vaccines [8].



To solve the vaccination hesitancy by short-term and long-term plans, the province and the central government conducted several proactive surveillances, which include reporting and feedback system to make sure the process of the vaccination programme becomes more complete and dependable [8]. A follow-up efficacy of the vaccine is also important, which can strengthen the credibility of the vaccine programme [8]. Effective delivery of health information and education related to approved COVID-19 vaccines with disclosure of their efficacy and safety profiles is the most significant for the government and the public [8].

In summary, there are two principles necessary while facing vaccination hesitancy in my opinion. First of all, time is of the essence. Waiting too long to be vaccinated allows the coronavirus to continue spreading in the community, with new variants emerging, which can be very dangerous. The sooner you get vaccinated, the sooner you are protected [12]. Second, vaccines cannot save lives unless people get vaccinated. Nevertheless, even if you are vaccinated, you should continue to wear a mask, wash your hands and practice physical distancing until the pandemic is over [12].

You may wonder after reading this article: then what can we still trust in this COVID-19 era? Frankly speaking, maybe we just need to trust the laws of vaccination programme in our country and your body immunity. Then, decide on a regretless decision on your own because no one else but only you can take responsibility for your health.

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WITNESSING THE COVID-19 VACCINA DRIVE IN THE WO



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COVID-19 Vaccination in India

COVID-19 (2019-nCoV), as we all know, has put a pause in one's life. All the schools, colleges, universities, shops, offices, parks, and theatres were closed down to fight this deadly COVID-19.

India registered its first case on 27 January 2020. After that, it has spread to such an extent that today India registered more than 10 million cases, out of which more than 150 000 people have died due to it. **Figure 1** shows the series of 'lockdown and unlock' measure taken by the Government of India to fight COVID-19. It includes shutting down schools, colleges, universities, and major economic activities for more than 5 months. Due to overburdened health care workers and hospitals, there was a dire need for measures and solutions to it.

SERIES OF LOCKDOWNS & UNLOCKS

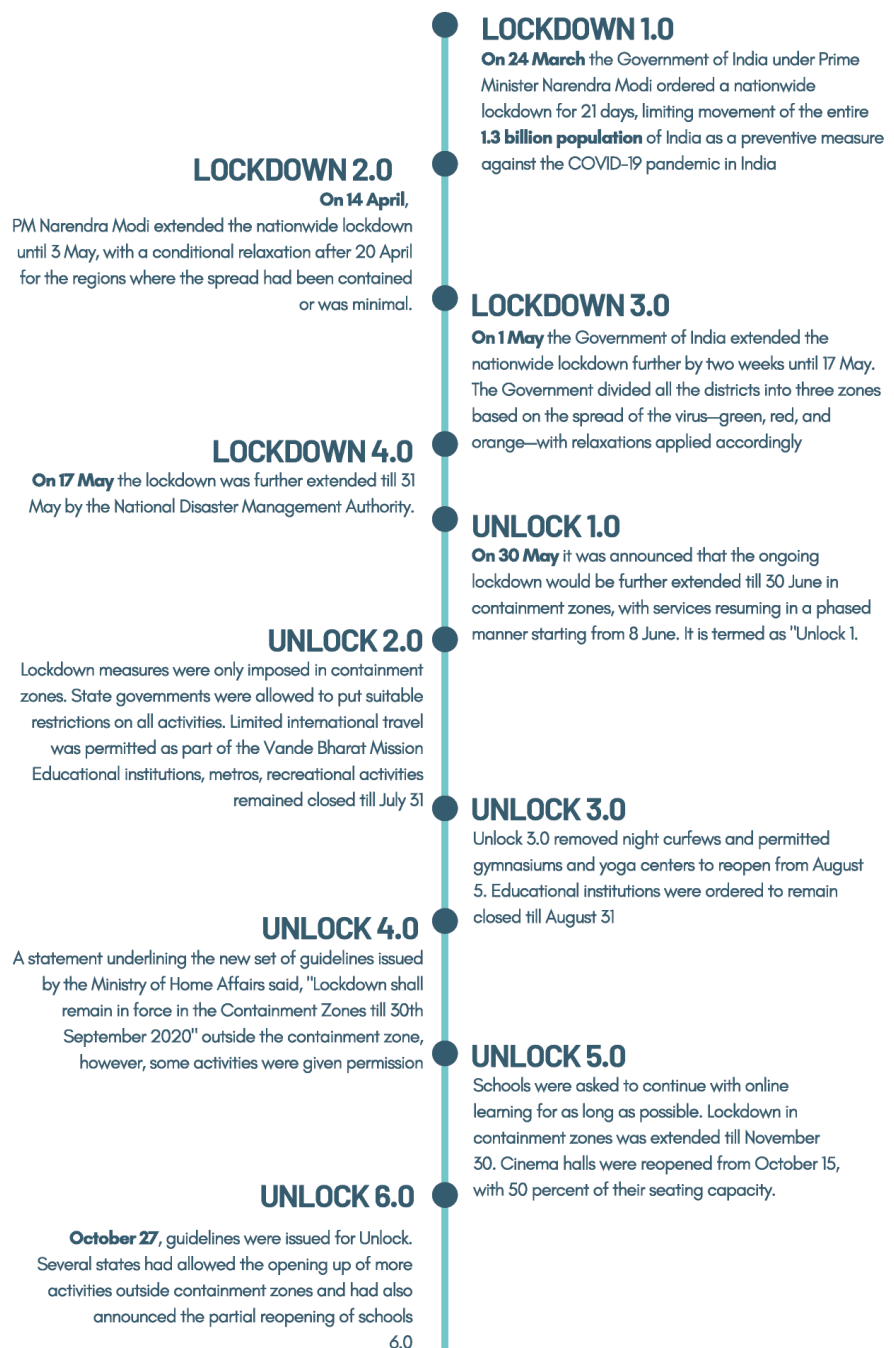


Figure 1

Vaccines

The Drug Controller General of India (DGCI) have approved COVISHIELD and COVAXIN. These two vaccines have granted Emergency Use Authorisation (EUA). These vaccines can be stored at +2 to +8 degree Celsius.

Emergency Use Authorisation (EUA) is a regulatory mechanism to allow the use of vaccines and medicines to prevent and/or reduce the impact of life-threatening diseases or conditions as caused by COVID-19. Rigorous assessments of laboratory and clinical trial data, including data on quality, safety, production of protective antibodies and efficacy is conducted before granting EUA. EUA by Indian regulators is aligned with global guidelines.

COVISHIELD

The vaccine is developed by AstraZeneca and Oxford University and manufactured by Serum Institute of India. According to global trials, the vaccine is 70% efficacious and with one dosing regimen. It has an efficacy of 90%.

COVAXIN

It is the indigenously developed vaccine by Bharat Biotech. As of now, no clear data has been produced on its efficacy. According to DGCI, it has no serious side effects.

COMPARISON BETWEEN COVISHIELD AND COVAXIN

Indicator	Covishield	Covaxin
Type of vaccine	Recombinant COVID-19 vaccine based on viral vector technology	Whole virion inactivated COVID-19 vaccine
Shelf life	6 months	6 months
Schedule	4 weeks apart	4 weeks apart
Number of doses in each vial	10	20
Efficacy	70.42%	N/A
Dose	0.5 ml each dose	0.5 ml each dose
Course	2 doses	2 doses

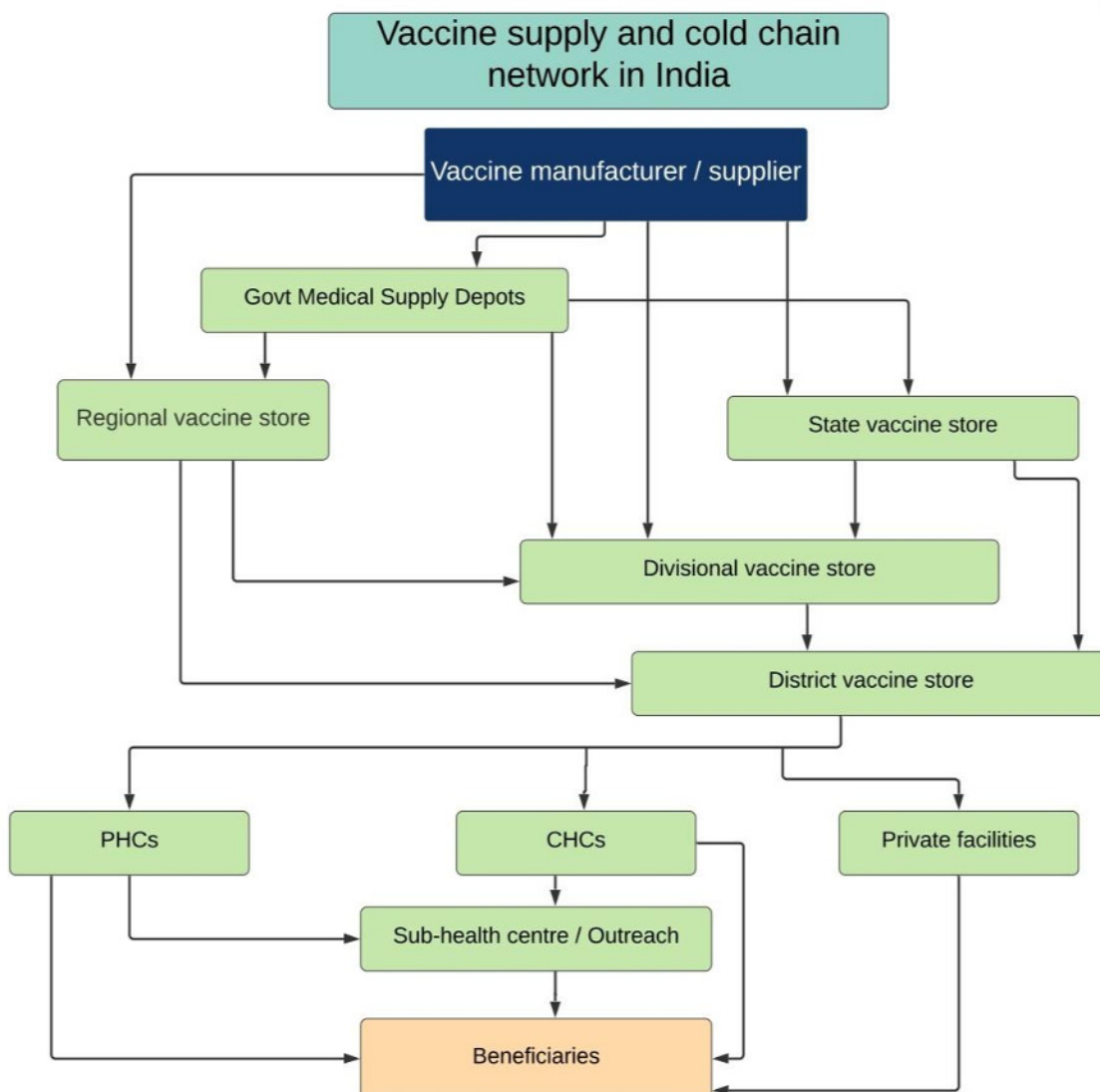


Preparation of Vaccination Drive

Vaccinating a huge country with a huge population has always been a challenging task. The Government of India prepared a special task force to carry out COVID-19 vaccination, whether it was suitable for public use. The major challenge for India was the presence of cold storage. India has 28 000 units of cold storage that were designed for vaccines that are kept between +2 to +8 degree Celsius. As vaccines developed by PFIZER require -70 to -90 degree Celsius storage, it is not possible to vaccinate the rural population served by rural PHCs since these PHCs are not electrically equipped. To overcome the electrical supply, the state governments started investing on renewable sources of energy to ensure 24/7 power supply to PHCs.

Why are PHCs important?

The role of PHCs is critical in India's immunisation programme. Manufactured vaccines are transported to regional vaccine stores from where they are transported to district vaccine stores, which are then transported to community health centres (CHCs) and primary health centres (PHCs). CHCs and PHCs have been installed with cold chain facilities for storing vaccines. During the immunisation programme, the ANWs (Auxiliary Nurse Midwife) of each health centre under PHC are issued kits that contain vaccines to be stored at the right temperature at the time of usage. Under such a complex and systematic system, PHCs play an important role in maintaining the right temperature of the vaccine until the final step of its delivery. It is likely to play a crucial role in mass vaccination during the COVID-19 pandemic.



Vaccination Drive in India

PHASES OF COVID19 VACCINATION

PHASE 1

Started on January 16, 2021, In the first phase, vaccination was opened to all the healthcare and frontline workers.

PHASE 2

Started on March 1, 2021, In the second phase, vaccination was opened to all people above 60 years of age or people between 45 to 59 years with co-morbidities.

PHASE 3

Started on April 1, 2021, In the third phase, vaccination was opened to all people above 45 years of age irrespective of co-morbidities

India started its vaccination drive all over India, starting with healthcare and front-line workers on 16 January 2021. Over 1.91 lakh or 191 thousand health care workers were vaccinated on the first day. It took 6 days for the government to administer 1 million doses to health care workers. It took 34 days for India to reach the 10 million mark, which is the second-fastest in the world. India registered serious side effects events as well which accounts for 0.2% of cases. The vaccine was given free of cost to healthcare and frontline workers.

The second phase of the COVID-19 vaccination drive started on 1 March 2021. Vaccination was opened to all the senior citizens, which are people of more than 60 years of age and people between 45-59 years of age having co-morbidities. It is a voluntary drive. Prime Minister Narendra Mode took his first shot of the COVID-19 vaccine on 1 March 2021 at AIIMS, New Delhi. By mid-March, India crossed the 30 million mark. The price per vaccine is 250/- rupees.

The third phase of the COVID-19 vaccination drive started on 1 April 2021. Vaccination was opened to all the people aged 45 years and above irrespective of co-morbidities. According to the latest data by the Ministry of Health and Family Welfare, about 80 million doses have been administered so far, out of which 70 million first doses have been administered and 10 million second doses have been administered.

COVID-19 vaccine is not administered to:

- Children below 18 years of age;
- Pregnant and lactating women;
- Persons showing active symptoms of COVID-19;
- Persons with a history of an allergic reaction to a previous dose of a COVID-19 vaccine; and
- Persons with a history of an allergic reaction to vaccines or injectable therapies.

Vaccine & Technology: Co-WIN App

The central government had announced that citizens who are eligible for the vaccine can register via the Co-WIN website or Aarogya Setu app for Android and iOS. The government has also developed a dedicated Co-WIN app; however, it is currently accessible by admins.

Both the Co-WIN portal and Aarogya Setu platforms allow a user to register at least four family members (including the user) for the COVID-19 vaccine. The platform essentially allows users to find the nearest vaccine centre (could be both government or private centres) and book a slot, as per the availability. Citizens also have the option to update the slot or cancel the appointment altogether.

Co-WIN 2.0 app was launched by the Government of India named Co-WIN vaccinator app. It makes the online process even smoother for everyone to register themselves for the COVID-19 vaccine. Any eligible person can book the slots of his family members in up to 4 members for COVID-19 vaccination. The app can be downloaded on both Android and IOS.

Vaccine Maitri

Vaccine Maitri is the initiative undertaken by the government of India to provide vaccines to other countries. India started the international shipment of the made-in-India vaccines on 20 January 2021, just four days after starting its vaccination programme. Bhutan and Maldives were the first countries to receive vaccines as a grant by the Government of India. It is quickly followed by shipments to Nepal, Bangladesh, Myanmar, and Seychelles. As of 15 March 2021, India has donated more than 8 million doses to more than 37 countries around the world. India is also supplying made-in-India vaccines on a commercial basis to Canada, UK, Saudi Arabia, etc. Serum Institute of India has been selected as one of the main suppliers to the COVAX initiative to supply cost-effective COVID-19 vaccines. Several million doses of the COVISHIELD vaccine have been supplied by India to various countries through the COVAX initiative.

Current Scenario

India registered a spike in COVID-19 cases again with 90 000 cases every day. Schools are shut again, night curfews are being imposed, and weekend lockdowns have been imposed in some states. The central government has urged the state governments to ensure 100% vaccination. Election Commission of India also helped the government in vaccination by providing voter details to carry out the vaccination drive successfully. There are reports as well that India is going to approve SPUTNIK-V due to the rise in COVID-19 in India. We hope that the Government of India may achieve its target of reaching 300 million people by August.

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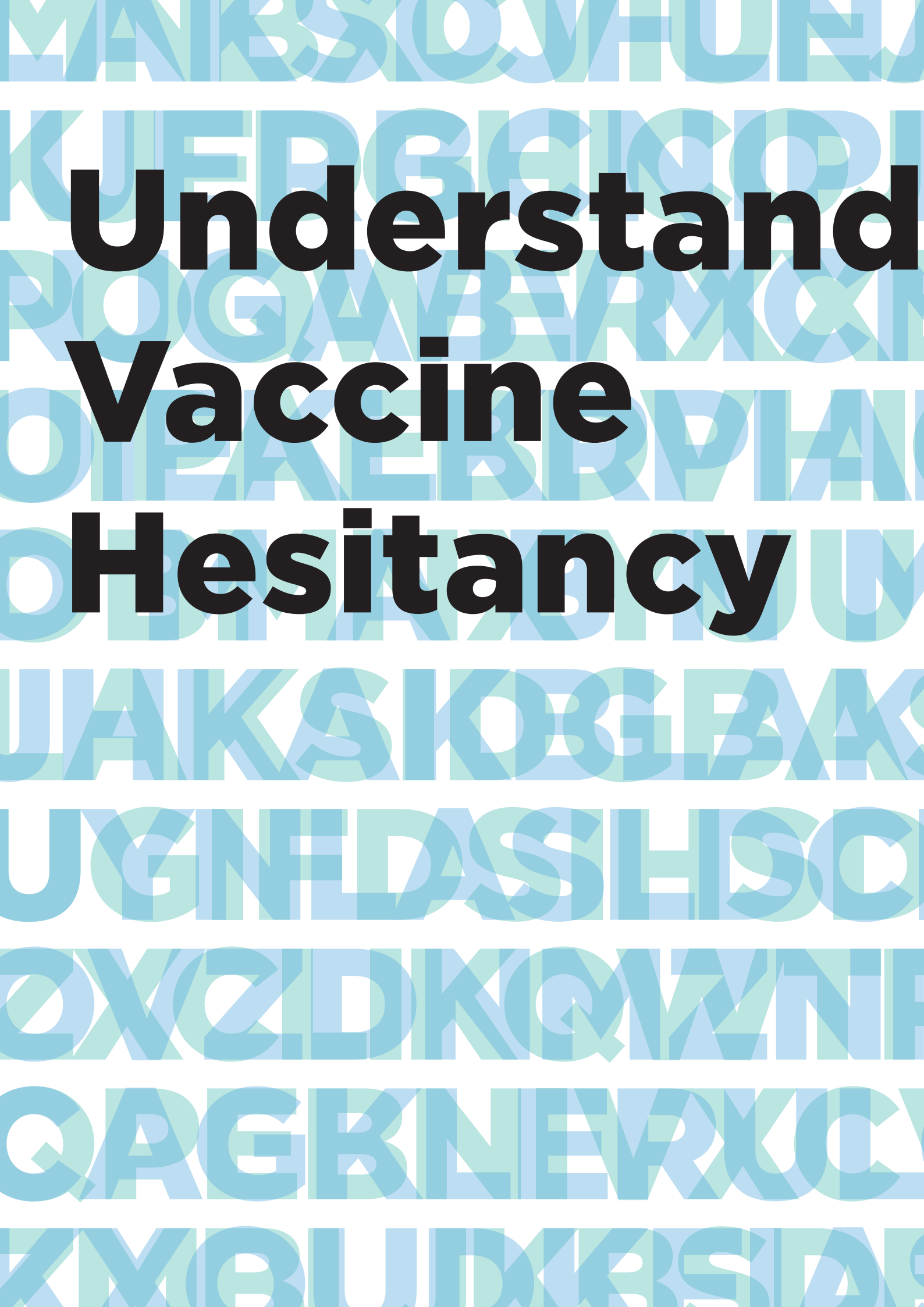
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Understand Vaccine Hesitancy

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Table: Description of participants and breakdown of the Vaccine Hesitancy Survey Questions

	Overall
n	65
Gender (%)	
Male	20 (37.77)
Female	45 (69.23)
Country (%)	
Bangladesh	2 (3.07)
India	5 (7.69)
Indonesia	18 (27.69)
Malaysia	1 (1.54)
Mongolia	1 (1.54)
Philippines	38 (58.46)
In terms of knowledge about vaccines, who do you trust the most? (%)	
Ministry of Health	30 (46.2)
Government leaders or officials	5 (7.7)
Academic institutions (medical schools, research facilities)	51 (78.5)
Pharmaceutical companies	18 (27.7)
Health-related Non-Governmental Organisations	24 (36.9)
World Health Organization	61 (93.8)
Colleagues	12 (18.5)
Family	2 (3.1)
Social Media	0
Others	1 (1.5)

In terms of knowledge about vaccines who do you trust the least? (%)	
Ministry of Health	6 (9.2)
Government leaders or officials	28 (43.1)
Academic institutions (medical schools, research facilities)	3 (4.6)
Pharmaceutical companies	7 (10.8)
Health-related Non-Governmental Organizations	3 (4.6)
World Health Organization	5 (7.7)
Colleagues	12 (18.5)
Family	22 (33.8)
Social media	49 (75.4)
Others	11 (16.9)
Are there any reports you heard/read in the media/on social media that made you reconsider the choice of your vaccine?	
Yes	38 (58.5)
No	27 (41.5)
Do you share information related to vaccination within your social media network?	
Yes	34 (52.3)
No	31 (47.7)
Do you remember any events in the past that discouraged you from getting a vaccine(s) for yourself?	
Yes	12 (18.5)
No	53 (81.5)
Do you know anyone who does not take vaccines because of cultural or religious reasons?	
Yes	21 (32.3)
No	44 (67.7)

Do you trust that your government is making decisions in your best interest with respect to what vaccines are provided?	
Strongly agree	10 (15.4)
Agree	22 (33.8)
Neutral	19 (29.2)
Disagree	10 (15.4)
Strongly disagree	4 (6.2)
Vaccination in door-to-door or mass immunisation campaigns provide you with sufficient information to address concerns around vaccination.	
Strongly agree	8 (12.3)
Agree	38 (58.5)
Neutral	16 (24.6)
Disagree	2 (3.1)
Strongly disagree	1 (1.5)
Information on side effects following immunisation is discussed openly by the authorities	
Strongly agree	8 (12.3)
Agree	33 (50.8)
Neutral	11 (16.9)
Disagree	11 (16.9)
Strongly disagree	2 (3.1)
Do you think vaccines are still needed even when the concerning disease is no longer prevalent?	
Strongly agree	40 (61.5)
Agree	25 (38.5)
Neutral	0
Disagree	0
Strongly disagree	0

Do you think it is important to get a vaccine to protect those that cannot get vaccinated?	
Strongly agree	43 (66.2)
Agree	19 (29.2)
Neutral	1 (1.5)
Disagree	2 (3.1)
Strongly disagree	0
Do you feel you get enough information about vaccines and their safety?	
Strongly agree	9 (13.8)
Agree	32 (49.2)
Neutral	18 (27.7)
Disagree	6 (9.2)
Strongly disagree	0
What is the first thing you want to know when a new vaccine is introduced or announced?	
Safety	31 (41.7)
Efficacy	22 (33.8)
Side effects or adverse effects	12 (18.5)
Would you rather wait and see what vaccines other people get?	v
Strongly agree	6 (9.2)
Agree	23 (35.4)
Neutral	23 (35.4)
Disagree	13 (20)
Strongly disagree	0

It is time that we talk about the scale of vaccine hesitancy, the damage it caused, and its ripple effect. Vaccine hesitancy is defined by the World Health Organization as a delay in acceptance or refusal of vaccination despite the availability of services. The form and intensity may vary depending on when or where it occurs, and what vaccine is involved [1].



I first heard about vaccine hesitancy during the peak controversial issue of the Dengvaxia vaccine hesitancy in my country, the Philippines. It made it in the national news and several politicians were involved - contradicting and confusing the public. As a result, national immunisation programmes were affected. In the following years, we have seen rising cases of measles and polio. But this was not an isolated issue, because globally it was a problem, and in combination with misinformation and fear-mongering - it was an obstacle towards achieving coverage and herd immunity. That is why in 2019, it was identified as the top ten global health threats [2], but the effects were not immediately seen until after we have had cases of emerging and re-emerging diseases.

That is why it is imperative that governments, public health officials, the healthcare sector, and civil society organisations collaborate to address hesitancy and build vaccine literacy so that the public will accept immunisation [3]. This is because vaccines and vaccination are a key part of the healthcare system, and it is the most cost-effective public health intervention in reducing disease burden and mortality [4]. While we are still in the middle of the COVID-19 pandemic, it is important to bring this issue to light now more than ever.



Why? Because most people who are anti-vaccination are propagating practices, such as vaccines are toxic and natural immunity is better, and there is a collusion between healthcare providers and pharmaceutical companies. And recently, people are looking for an easy but dangerous way to supposedly cure COVID-19 but as we all know – there are no studies to prove there is such a cure.

With the increasing knowledge gap, we need to identify factors that affect vaccine hesitancy. According to Debe et al, experiences, perceptions of disease risk, ways of thinking, information sources, and trust in the healthcare system are among the multiple factors that contribute to hesitancy [5]. While we acknowledge that this is a complex and multifaceted issue, the decision-making process of the individual seems to rely on the attitudes, behaviour, and knowledge of their medical provider as key determinants [6].

Fortunately, some countries in Asia (China, South Korea, and Singapore) have acceptance which exceeded 80%, while middle-income countries such as Brazil, India, and South Africa have a high tendency towards acceptance that was observed [6]. Results from the vaccine hesitancy survey conducted by AMISA International showed that WHO and academic institutions are among the trusted source for vaccine information. On the other hand, the majority of the survey respondents answered that in terms of knowledge about vaccines, government leaders and social media are among the least. Social media has also contributed to the reason why they reconsidered their vaccine choice.

As some countries are already starting to recuperate, and slowly getting back to normal because of their successful COVID-19 vaccination. Some are still lagging behind and it could take a while before we achieve herd immunity. But with lockdowns, digital health and telemedicine are among the best way to reach out and communicate with the public. Social media could also be a potential powerful tool we need to utilise in order to combat misinformation and address vaccine hesitancy.

The WHO SAGE working group dealing with vaccine hesitancy conducted a systematic review of strategies for addressing vaccine hesitancy that is implemented and evaluated across the diverse global context. The interventions that were identified to have the largest positive impact are those that directly target unvaccinated or under-vaccinated populations, aim to increase the knowledge and awareness surrounding vaccination, improve convenience and access to vaccination, target specific populations such as local community and HCWs, vaccination mandates, engage religious and influential leaders to promote vaccination. While there are also interventions that target psychological shifts such as the introduction of education initiatives to embed new knowledge into tangible practices. In a summary, those that employed a number of these strategies were considered the most effective in shifting attitudes toward vaccine confidence.



As medical students, we play a critical role as future physicians. So, we should be champions for vaccine trust and engage with the public. It is important to start within our own circle of family and friends to raise awareness of vaccines and the importance of getting vaccinated. Even though the results of the vaccine hesitancy survey are relatively positive towards vaccine confidence, we must also understand the factors of hesitancy so that we can improvise strategies to tackle these issues.

So, if you are going to ask me right now, if being vaccinated means that you are also saving those who are vulnerable and cannot be vaccinated, then I would say “yes.” Also, if I will get whatever vaccine that is available because I believe it will protect me regardless, then I would also say “yes.”

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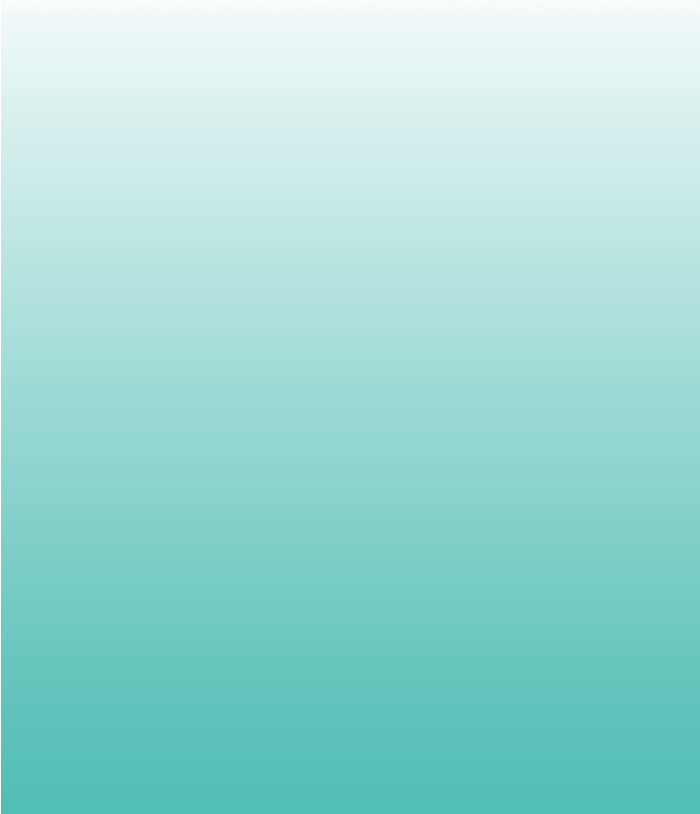
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Immunisation, From A Behavioural Standpoint



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From our womb till adulthood, the immune system – our protective guardsmen throughout life – remains the mainstay for our daily activities. Without them, infections trample on our organs and wreck hell, feasting on our cells, triggering immunological reactions. The innate immune system kicks in to provide the immediate non-specific first line of defence against pathogens. Natural killer (NK) cells, granulocytes (neutrophil, basophil, eosinophil), antigen-presenting cells (macrophage), and complement proteins assemble in unison to eradicate the mess engendered by them. Important as it is, as humans, we normally get vaccinated not long after we enter the world as blank slates, clueless about the needles and fluids injected into our deltoid muscles, where it provides what is essential to defend against pathogens that had caused pandemics worldwide, such as mumps, measles, and rubella for instance. Its roots bring us back to 1796, where Dr Edward Jenner performed the world's first vaccination on smallpox by using cowpox. He unknowingly paved the way for future generations of doctors to be well-equipped to deal with pandemics, localised endemics, et cetera, and somehow changed the world.



Immunisation not only has changed the medical landscape, for which most people would have known by now, but it also generated different views among different populations around the globe as we step afoot in the 21st century. Undoubtedly, social determinants of health play a huge role in manifesting this divergence. If we were to compare two different people, one living in the city while the other living in a rural area, at first, we might not notice a difference while they enter this world as neonates. However, after decades of being surrounded by other people with differing worldviews, the results might seem strikingly different. Their take on vaccination might differ according to the information to which they are exposed to. Religious beliefs might also play a role in this. Take for instance, in Malaysia, the initial stance on imported vaccines was filled with fear and apprehension as citizens doubt that the vaccines were not animal-derived, which were not in line with some religious principles. Fortunately, the vaccine manufacturers addressed this issue and dispelled myths formed by the community, not to push the agenda of increasing sales, but for the better acceptance of COVID-19 vaccines.

Unequivocally, the level of educational attainment of a person will affect his or her decision on whether to get immunised. Parents who did not graduate may be more fearful than those who received a formal education, propagating misinformation towards those around them – silently affecting their decisions on being immunised. Being cognisant of the latest developments such as teleconsultation, healthcare digitalisation, and vaccination through credible sources lies paramount for the wellbeing of our fellow citizens, especially during the lockdown period where mobility is restricted. Everyone should be entitled to make an informed opinion before undergoing immunisation, particularly those who are allergic, possessing low immunity, pregnant and vulnerable. Since vaccination may not be appropriate for everyone, healthcare workers should increase efforts to inform the public of the possible risks before one receives a vaccination through television, radio, SMS, and so forth.

To understand the behavioural aspects of immunisation, we must dive deep into the underlying drivers of vaccine decision-making. Policymakers should design their strategies for vaccine take-up to target these factors, such as the perceived risk of disease, vaccine efficacy, side effects, social norms, costs in terms of time and effort, and building trust in the government and the healthcare system. Different age groups possess different risk profiles, where not everyone is confronted with similar mortality and morbidity rates in case of contracting a COVID-19 infection. This propels the hesitancy and reluctance to be vaccinated. Mandating vaccination might sound extreme, albeit ethicists profess that a COVID-19 vaccine should be made compulsory under the four following conditions stipulated by the WHO:

- i) there is a grave threat to public health;
- ii) the vaccine is safe and effective;
- iii) mandatory vaccination has a superior cost-benefit profile compared with alternatives, and
- iv) the level of coercion is proportionate.

Mandating vaccination also has its cost, it wrongly creates a perception that COVID-19 vaccines are not safe, policies may discriminate against those who are geographically disadvantaged despite the willingness to be vaccinated.

To sum things up, immunisation has its role in providing assurance to those who are vulnerable to infection. However, we must not forget the presence of behavioural aspects which teaches us to be vigilant and informed before undergoing vaccination. We must consider its risks and positive outcomes in our society to always uphold the founding pillars of medical ethics, which are beneficence, non-maleficence, autonomy, and justice.

*No references were used in the generation of this article.

Vaccination in Special Populations



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The COVID-19 pandemic which originated from Wuhan in late 2019 has already kicked up a furious maelstrom throughout the globe, leading to socio-economic, physical, and mental problems in people from various levels of society. The statistics are morbid, especially in the case of the elderly population, with CDC reports stating that the rate of death is 8700 times higher in individuals above 85 years when compared to the death rates among 5-17 years old individuals.

The arrival of Pfizer-BioNTech and Moderna, developed using mRNA technology, is a ray of hope meant to alleviate the fears and severe symptoms associated with SARS-CoV2, yet several subgroups fall under scrutiny regarding the safety and efficacy of these vaccines. The elderly, most often the ones above 65 years of age have presented with a greater risk of succumbing to the virus and there have been reports of exacerbated symptoms that ultimately progress to respiratory failure and death following a COVID-19 infection. However, several studies performed among the elderly have reported high efficacy rates of the SARS-CoV-2 spike RNA vaccines, BNT162b in older adults which counteract the myths of lowered efficiency and increased risks among the elderly patients.

The official COVID-19 vaccination recommendations in Germany place the oldest and most vulnerable population along with the frontline medical workers as the priority groups for receiving the vaccine doses earlier than the rest of the population. Another overlooked group is the one comprising of infants and adolescents with the exclusion of children under 16 years old from the vaccination programme. Even though the morbidity and mortality rates associated with younger patients is lower compared to the data from other age groups, the reports of severe COVID-19 disease symptoms among the children cannot be ignored. As it is, children have not been properly represented among the vaccine trials, with no minors being enrolled until the mid of October 2020, so it is difficult to predict the responses that this age group may exhibit against the vaccine doses. The more severe, underlying risk of children and adolescents acting as vectors for transmission of this dangerous virus to the vulnerable adult population is a major roadblock for combating this pandemic. The incidence of an increased number of symptomless patients among this age group points towards the immediate requirement of developing a specialised

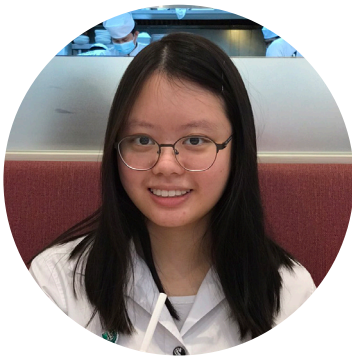
vaccination regime to protect the society as a whole, including the older adults, and to decrease the household transmission of SARS-CoV-2. Another vulnerable stratum is the immunocompromised population, including HIV positive patients and organ transplant patients undergoing brutal corticosteroid therapy. The two COVID-19 vaccines, BNT16b2 and mRNA1273, operate by eliciting a strong humoral response with the consequent production of antibodies coupled with a strong cellular response by inducing the maturation of CD4+ and CD8+ T cells and cytokines. Thus, the exclusion of patients on anti-cancer drugs, corticosteroids, and other medications prescribed for various auto-immune disorders pose a serious problem towards tackling the ongoing pandemic.

Even though there have been no reported cases of these drugs interfering with the functioning of the vaccine, more attention in the form of research and clinical trials are required to construct a systematic vaccination plan for these patients. As of 26 August 2020, over 40 million HIV positive patients are over the age of 50 years, making them extremely vulnerable to getting afflicted by the ongoing COVID-19 disease. A province-wide cohort study on HIV-positive individuals residing in Western Cape, South Africa showed that the HIV positive patients had a higher hazard ratio of mortality resulting from contracting the COVID-19 disease compared to their negative counterparts. Even though there is insufficient literature regarding the response towards the virus in this population, there is an urgent requirement for improved vaccination trials and the development of specialised vaccines which do not interfere with their ongoing ART regime. Ongoing studies have demonstrated that COVID-19 is not an opportunistic infection in cases of well-controlled HIV-1, yet doctors and healthcare providers need to be extra vigilant of any signs of respiratory distress in these patients. With over 24 million cases of COVID-19 worldwide and the continually increasing numbers with each passing day, it is highly important to allocate funds for the development of separate vaccines and conduction of clinical trials in the vulnerable groups of society to effectively protect humanity as a whole against this deadly virus.

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Vaccination: Facts vs. Myths



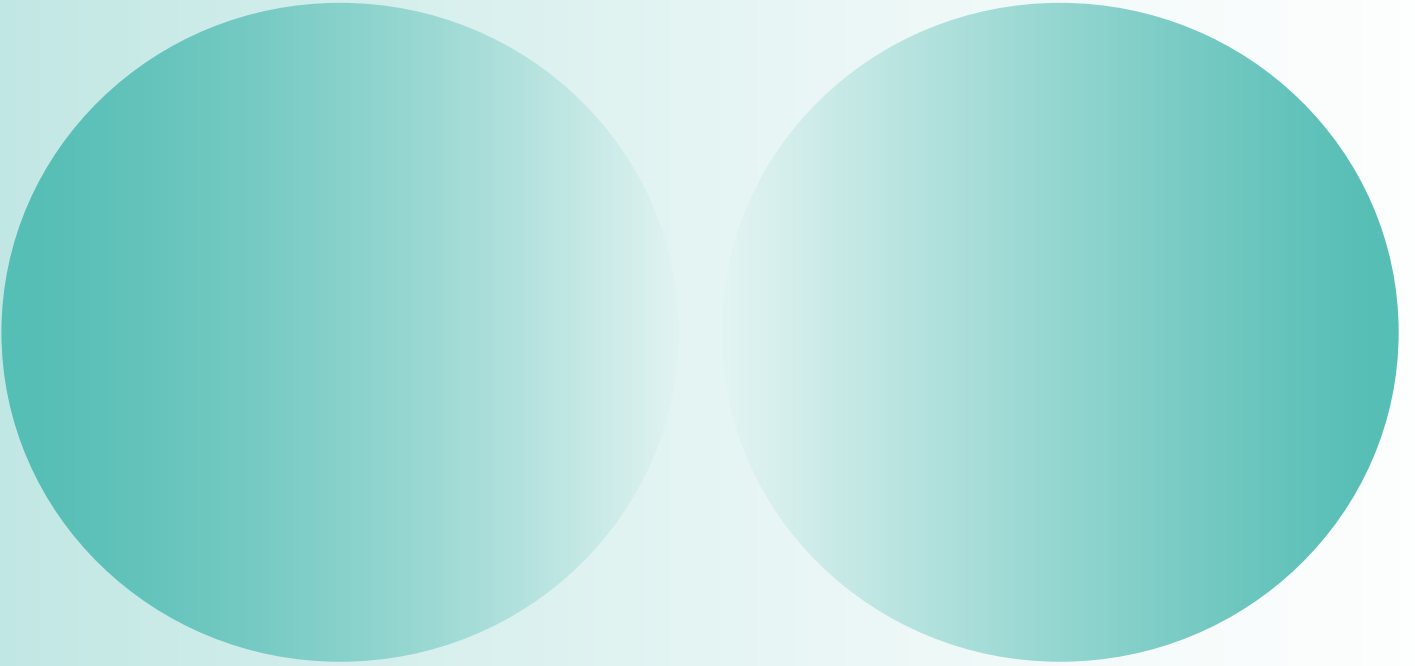
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At this moment, the topic that people around the world are interested in cannot be other than **“COVID-19 Vaccination”**. Seeing that more and more people are suffering from this pandemic, scientists have finally found a way to prevent the disease by injecting vaccines through the body. Anyhow, a lot of people still hesitate to be vaccinated. The reason is that there are plenty of myths spreading widely by word of mouth and by social media, which make people believe that the vaccine is unsafe. But is it true? Do vaccines really provide many harmful effects?

We will find out about that, facts and myths about vaccines, in this article.

One of the classical myths is that vaccines cause autism. The misrepresentation of clinical and biological data in the Lancet in 1998 (Wakefield et al., 1998) led to this illogical belief. The vaccine being claimed in the study was the MMR vaccine which addresses its ability to cause autism disorder. Later, this study has been debunked by many other studies which were carried out by larger samples. They found no difference in the age of diagnosis of autism between vaccinated and unvaccinated children.

Some parents believe it is negligible to vaccinate a child, especially at the earliest ages. And some anti-vaccine groups even cited that vaccination could affect a child's immune system and neurodevelopment. However, the researchers found no association between the number of vaccine antigens injected and adverse neuropsychological outcomes. In turn, it is recommended that children receive vaccines at the earliest ages, especially during the first year of life, because at that time, they are most vulnerable to the devastating consequences of invasive bacterial infections such as pneumococcal or Haemophilus influenzae meningitis. Children are at significant risk of these deadly diseases unless they are vaccinated.

Many also concern that **receiving multiple vaccines weakens the immune system and causes autoimmune disease.** Correlations between vaccines and dysfunction of immunity are often cited as safety concerns. As it has been well studied, no associations between the number of different vaccines and an increased risk of autoimmune disorders or weakened immune disease have been found. Two recent systematic reviews looking at the association between other individual vaccines and central demyelinating disorders concluded that there was no relationship between receipt of a vaccine and development of multiple sclerosis (MS) (Mailand and Frederiksen, 2017; Mouchet et al., 2018).

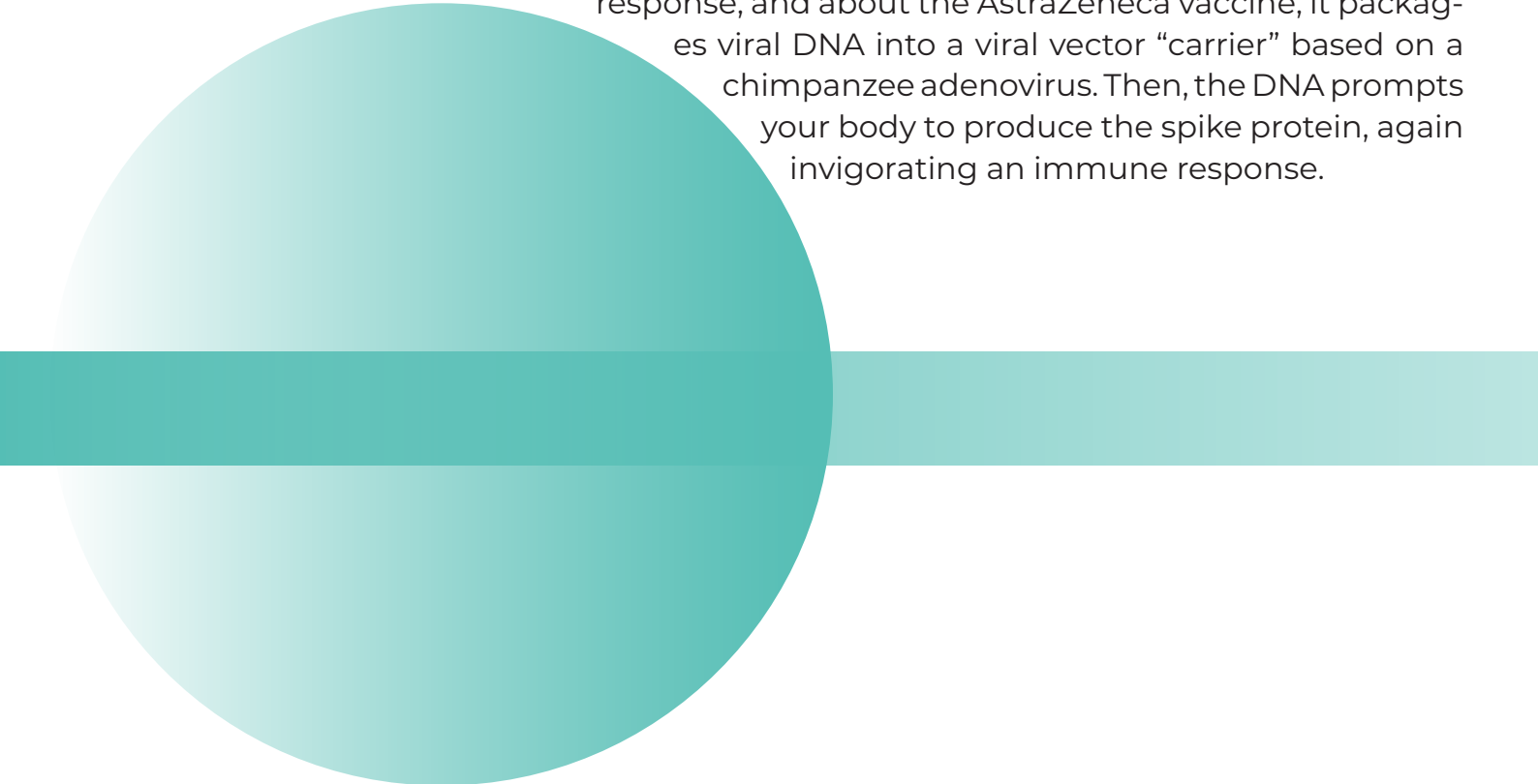
Some of the topics that are concerned are **the safety and side effects of vaccines**. Some people believe that vaccines are unsafe since it was developed so quickly. And it also has severe side effects such as allergic reactions and blood clot risks leading to cerebral sinus vein thrombosis (CSVT). Besides, there is a myth that vaccines contain unsafe toxins. Below are facts to explain and to reduce hesitation.

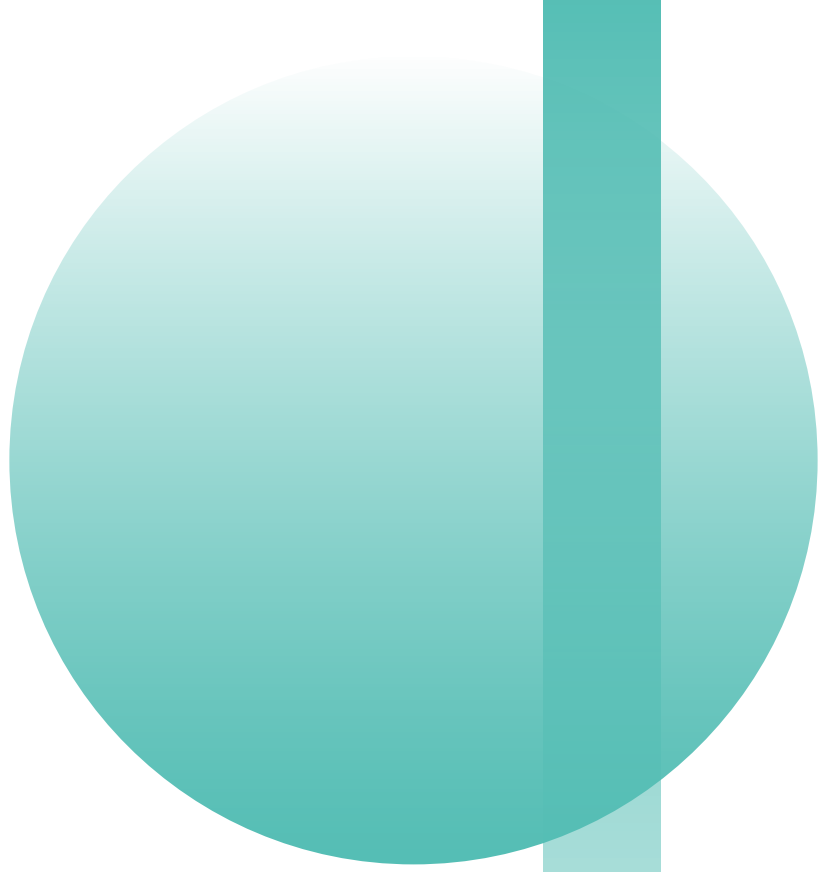
First, we need to know that a vaccine is safe since there are safety trials in the lab, testing, and researching on cells and animals before moving on to human studies. To check the effectiveness, the tests on large groups of volunteers—half were given the vaccine and the others were given a placebo—are reliable enough to get the right results. Countless scientific studies proving the effectiveness of vaccines can be found on websites like the Centers for Disease Control and Prevention or the American Academy of Pediatrics. About side effects, people can have severe allergic reactions to ingredients used in vaccines so people with a history of allergy must not get a vaccination. It is true that vaccines contain formaldehyde, mercury, and aluminum but in amounts needed for effectiveness. Due to CSVT cases in the UK who received the vaccine, people have displayed unusual combinations of blood clotting alongside a very low platelet count - cell fragments that naturally form clots, so it is suspicious that there might be a connection and no link to the vaccine.

Someone may be concerned that **after getting a COVID-19 vaccine, he or she will get a positive result for COVID-19 on a viral test.** In short, that is a false belief. Nevertheless, the fact is that none of the authorised and recommended COVID-19 vaccines cause you to test positive on viral tests. Viral tests are used to detect whether you have a current infection or not. In the condition that your body develops an immune response to vaccination, which is the purpose of the vaccination, you may test positive on some antibody tests which look to see if your immune system has raised antibodies against the coronavirus, a sign your body has been exposed to it. Owing to it takes time for antibodies to develop, testing positive with an antibody test may indicate you were infected weeks or months ago.

One of the biggest misapprehensions is that vaccinations cause the diseases that they are supposed to prevent. The case study of this could be the ongoing pandemic, COVID-19. **So, will people get COVID-19 if they get COVID-19 vaccination?** The short answer is, “No.” Vaccines accepted for use up to present in many countries do not accommodate live COVID-19 virus.

Here is more information about the mechanism of actions of the vaccines. First, Sinovac works by using killed viral fragments to display the body's immune system to the virus. Next, The BioNTech/Pfizer vaccine contains an unnaturally generated portion of viral messenger ribonucleic acid or mRNA which carries certain genetic instructions for your body to make the coronavirus' spike protein, as opposed to your body initiating a protective immune response, and about the AstraZeneca vaccine, it packages viral DNA into a viral vector “carrier” based on a chimpanzee adenovirus. Then, the DNA prompts your body to produce the spike protein, again invigorating an immune response.





So, you do not have to worry about vaccine side effects, for example, feeling fatigued or fever. Because these symptoms are usually light and nonpermanent, these are indications that the vaccines are working to raise the immune system, not the signs of the disease. Besides, these manifestations are customary after routine vaccinations.

These myths and misinformation can be considered as a major hindrance in dealing with the disease, especially the pandemic such as COVID-19. As it can be seen, vaccination does not affect people only as individuals, but as a whole. To address this issue, healthcare providers and media should be informative to create the right understanding and awareness of the vaccine.

The State of Truth: Vaccine/Immunisation



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Vaccination represents a method of making the body resistant to disease. Vaccines are available for both children and adults. Vaccines function by naturally increasing the body's system reaction. It is a significant way to avoid life-threatening infections from viruses and bacteria.

Vaccines will be able to adapt and cope quickly with our bodies' systems. Vaccination campaigns around the world have aided in the improvement of public health, by reducing the spread of disease, reducing impairment, and reducing the number of child deaths among other things. Despite the fact that scientific vaccinations have been shown to be reliable and safe to use, several misconceptions persist. Several myths have been propagated, holding vaccines in the controversy.



Therefore, the following article will clarify certain vaccine facts and misconceptions. Here are the top six truths of vaccine:

1. MYTH: Vaccines cause autism and sudden infant death syndrome (SIDS).

FACT: Vaccines are generally considered to be extremely secure. The majority of vaccine reactions are mild and temporary, such as a fever or arm pain. After an individual has been injected with the vaccine, critical side effects are uncommon. If you have polio, for example, you can experience paralysis complications. If you get measles, you could develop encephalitis (inflammation of the brain lining) and go visually impaired. Furthermore, some preventable diseases by vaccination usually result in death. Vaccination's benefits far outweigh the risks. Up until now, no conclusive evidence has been found that links vaccine administration to autism or SIDS.

2. MYTH: Being “natural” is preferable. Vaccines and other foreign drugs should not be injected into our bodies.

FACT: Being “natural” is not necessarily preferable. There are several items in nature that should not be consumed, such as some specific plants and berries which contain some of the most potent poisons. Vaccines are manufactured using natural ingredients. Some vaccines are produced from live germs that have been altered so that they can no longer cause disease.

3. MYTH: Vaccines are lucrative for doctors.

FACT: Vaccination is a labour-intensive business that does not gain profits. Financial benefits are provided to certain doctors, but they promote high-quality practices and help physicians justify the manpower required to prescribe and keep track of all the patients.



4. MYTH: Toxins in vaccines are toxic.

FACT: Formaldehyde, mercury, and aluminium are all present in trace quantities in vaccines. However, despite their frightening names, these additives actually make vaccines safer. "They make sure the vaccine is sterile or capable of fulfilling its purpose," Boyer explains. "They are just toxic in far higher doses than the trace amounts needed for vaccines." In fact, the body's metabolic system produces formaldehyde at a higher rate. Thimerosal, a mercury-based preservative, appears to be causing the most anxiety among parents. However, any fears about Thimerosal today are unfounded since it was excluded from all childhood vaccines in 1999.

5. MYTH: I do not need to be vaccinated if anyone around me is immune.

FACT: Getting vaccinated is similar to wearing a mask, it protects not only you but also your community. Person-to-person communication is how most vaccine-preventable diseases propagate. When one person in a group contracts the disease, it is extremely easy for it to spread to others. The more people are immunised, the less likely a disease could spread.

6. MYTH: Since I am breastfeeding, my baby is immune to infections.

FACT: Breastfeeding is not a vaccine replacement. Breastfeeding will help protect your baby from such diseases, such as viral respiratory infections, ear infections, and diarrhoea. However, this defence is insufficient, only lasts for a short time, and can be overcome if your baby is exposed to significant quantities of a particular germ.

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Vendetta Vaccination:

Thirteen QnA You Should Know About
in This Post-COVID Era



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When it comes to the prevention of COVID-19, wearing a mask is now not the only important method in this post-COVID era. More and more countries are trying to focus on herd immunity through vaccination. However, most of the public are still wondering about the effect of the vaccine. For those who are hesitating whether to vaccinate, why not take a look at this article!

1. What is a vaccine? What does it do?

A vaccine contains a milder form of the disease-causing organism (pathogen), which is inactivated to stimulate your immune system to fight against it, without actually causing the disease. This helps create an immunological memory in your body to fight the potential disease-causing organism in future, without ever being diseased.

2. Why does it take so long to make a vaccine?

Inactivating the pathogen and coming up with a vaccine is not that difficult, but vaccines can potentially have different adverse reactions and long-term side effects in a large population. Ensuring vaccine efficacy and safety through clinical trials or post-marketing surveillance is a long but essential part of the vaccine development process.

3. Why is vaccination useful?

Although vaccination cannot help treat a disease that you are already suffering from, it can surely prevent diseases before they develop.

4. How helpful is vaccination?

The efficacy of vaccines varies from disease to disease and depends on the type of the vaccine. But vaccines, generally, have undoubtedly helped reduce the incidence of severe forms of dreaded diseases like tubercular meningitis.

5. Is getting vaccinated once enough to last for a lifetime?

You will probably need multiple doses of the same vaccine and complete a course for your body to develop a specific immunity strong enough to prevent the disease.

6. What are booster doses?

The immunity against a few diseases (like tetanus) often wears off after a few years.

Therefore, booster doses of the same vaccine (usually a single, less potent dosage) are periodically required to keep your immunity up to date.

7. How do I know if I have been vaccinated adequately? What are antibodies?

Once vaccinated (or previously diseased), your body responds by producing proteins called 'antibodies' to fight off the infection. Measuring the amount of these antibodies in your blood is an indicator of how protected you are against the specific disease if you are exposed again; thus, antibodies can indirectly be an indicator of the efficacy of vaccination itself.

8. How reliable are laboratory tests for infections like COVID-19?

Even if tests are performed under ideal conditions of perfect sample collection, transport, culture, and analysis (which is not always possible), there still is an inherent tendency of the test itself to report a few false positive (low specificity) and false negative (low sensitivity). Thus, a negative test in presence of symptoms should still raise suspicion and warrant a re-test.

9. Is infection still possible after I have been vaccinated or diseased once before (reinfection)?

Once already infected (or vaccinated), your body has a greater probability of warding off the infection thus lowering the relative risk of reinfection. Nevertheless, the absolute risk is still there, increasing substantially if you are on steroids or otherwise immunosuppressed.

10. Am I safe and healthy if I do not experience any symptoms?

Even if you are symptomless, you might still be harbouring the infection and still be able to spread the disease-causing organism to others around you, who might be at risk of developing the disease.

11. What is herd immunity?

Herd immunity refers to a significant proportion of the population acquiring specific immunity against a disease so that the cycle of transmission of the disease is interrupted, resulting in a decreased risk of the non-immune members of the population acquiring the disease.

12. Will I experience any adverse effects after getting vaccinated?

Getting vaccinated is frequently associated with adverse reactions ranging from anxiety attacks, swelling at the injection site, low-grade fevers and even muscle aches. But often, these are signs of the vaccine taking effect, so these should not be a reason for not getting vaccinated. The bothersome side effects are extremely rare and more common in immunocompromised people.

13. Should I consider getting vaccinated?

This is a question you can answer best for yourself. Vaccination is a scientific practice, which has protected human from dreadful diseases several times in the past. The vaccines' development process has successfully and patiently reached its safety and efficacy benchmarks. There is nothing wrong with making either choice for yourself as long as you are informed well.

Decide well, for your health is your responsibility.

Checklists to Life: 12 Lessons I Learnt the Hard Way

1. REGRET

“Regret is born to kill your present potential.”

There will always be million possibilities to how you could have done something differently or chosen something else, and none of them would necessarily be wrong. Each choice has a price and comes with its baggage of roses and thorns. There is only one way to end up smiling at the end of it all; you take a decision, hope for the best, and make do with what you get.

2. BALANCE

“Life is always in a dynamic equilibrium.”

Life might seem dull on days and the most beautiful blessing on others, but often, it stays in the grey zone. Every day is a constant effort to make our souls happier; but there are times, no matter what, we lose in the face of circumstances, not in our hands. It is Ying and Yang, two sides of the same coin. The sorrow is what gives the joy its meaning. But what is most important to understand is that this equilibrium is dynamic. Every day is not perfectly balanced; but we attempt to remain close to it, so that we never drift away too far, in order to return.

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3. CRISIS

“Relax. It is not the end of the world.”

There will always be unpredictable situations you can never be prepared for. Not everything can be predestined, but it is a human tendency to panic in such instances. But often, the solution to the crisis lies right in front of our eyes. The panic not only just blinds us, but also aggravates the potential consequences. Next time you end up in an accident (your fault or someone else's), just relax. Breathe. And now you are ready to find the calmest way to handle the situation.

4. CONTENTMENT

“Count your blessings.”

It is a human reflex to desire evermore for things. But a conscious effort to just enumerate what you already possess, even once a day shall make you feel the richest person there can be. Just a thought, what good is all the money in the world if you cannot spend it well enough? (And well, finances are just a tiny fraction of what being rich means).

5. SELF EXPLORATION

“Find a purpose. It is food for your soul.”

The world is a beautiful place with a million opportunities to offer. Even you do not know what talents were engraved in your genes the day you were born and the millions more you could learn; art, music, or travelling? The only way to know is to get out of your cocoon. Trust me, you need it, your purpose is food for your soul.

6. FAILURE

“To err is human.”

Every new step you take, you are bound to falter. You do not, for even one second, have to be ashamed of it, but carry every failure as a proud scar. Every mistake is an opportunity to learn something new and add a feather to your cap. Repeating it is what should raise a red flag.

7. GRATITUDE

“Appreciate. It is a beautiful habit.”

We somehow evolved into a society that prefers red to talk behind backs and envies the qualities others possess. But a human can only do so much; we, as a species, emerged to have magnificent qualities no individual could possess. It is only natural, different people will excel in different spheres of life. Try appreciating someone on their face if you find them charming or chivalrous. Trust me, your soul shall feel happier that day.

8. COMMUNICATION

“An art of necessity”

Getting people to listen has become a difficult task, especially when most people have a lot to say. But let us try to accept the situation this way, it is much more the responsibility of the speaker to hook onto its audience than just theirs to pay attention. If they are not interested enough to listen to you, you probably need to up your game. The world is a stage, and you present as if it is your only chance.

9. MINDFULNESS

“You are where your mind is.”

Being mindful means to be in the present moment, calmly acknowledging and accepting one’s emotions and sensations. And there is not a better therapeutic technique invented for your soul.

10. STRESS

“It is all in your head.”

The fear of failure naturally stresses us out. That is an evolutionary advantage that helped our species survive this long. But that does not mean failures are unnatural. The stress rather must be overcome. No human is perfect. Accepting your flaws is the first step towards being a better, less messy person.

11. INDIVIDUALITY

“The road less taken is not necessarily the wrong one.”

Every human born is unique with their own set of vices and virtues. Right and wrong ways to do things are subjective. Accept yourself, make your place in the world because the world already has too many of the other kinds.

12. LEGACY

“Your learnings: pass them on. It is a cycle.”

All that you learnt in life; by yourself or by someone's virtuous act of teaching, that you thought you could never payback. Because that is your legacy, your learnings, meant not just for you but a million after you as well. And there could never be a more virtuous act than teaching - once you share a lesson, you both have it now.

SCOPING THE PROBLEMS AND SOLUTIONS
OF IMMUNISATION:

VACCINE EDUCATION IS THE KEY



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While vaccination has proven itself a critical aspect in reducing the global burden of infectious diseases, vaccine hesitancy and confidence remain as some of the greatest threats in global health. In the Asia-Pacific region alone, numerous issues and controversies affected vaccine confidence and uptake. In around 2017, in the Philippines, the Dengvaxia controversy led to wide-scale public outrage; its aftermath led to the plummeting of vaccine confidence and the reduced uptake of routine vaccinations advised by the national immunisation programme (1). Similarly, there were safety scares of the human papillomavirus (HPV) vaccine in Japan, which began in 2013; this led Japan to be ranked as one of the countries with the lowest vaccine confidence in the world (1). Even cultural factors can influence vaccine confidence, as observed in Indonesia between 2015 to 2019; wherein Muslim leaders raised skepticism on the safety of the measles, mumps, and rubella (MMR) vaccine; with claims stating that the vaccine was haram as it contains ingredients derived from pigs; which is

not acceptable for the Muslim population (1). Another critical barrier in vaccine confidence is misinformation, which has been noted in South Korea and Malaysia, to elaborate the internet is considered the primary source of vaccine-related information in Malaysia, and in South Korea, online communities that advocate against childhood immunisation have mobilized (1).

All in all, there is an interplay of factors that affect vaccine confidence and uptake, some of which may vary in different levels ranging from the individual, society, health care providers, to the government. Furthermore, with the advent of social media, vaccination discourse is now brought into another dimension, especially now that fake news and misinformation are involved. As the access to information increases, so does the skepticism of the general population, meaning the source of information also needs to be considered with great importance (2). In relation, health literacy is also an essential factor as it influences the usage of healthcare services, as a lack of knowledge not only by the public but also for the healthcare providers can also be considered as gaps that affect vaccine coverage (3). Meanwhile, at a systems level, there are the issues of equitable vaccine delivery and accessibility to healthcare services; this brings into consideration factors such as human resources, need for funding, vaccine supply, equitable delivery, and political support (4).

Despite the numerous barriers mentioned, various solutions can be done in addressing these gaps. Some recommendations include education programmes for healthcare providers, counselling services on vaccination, support from public officials, campaigns on the benefits and risks of vaccines, implementing legal guidelines for misinformation, organised, patient medical records, and equitable vaccination that is free to the public (3). Furthermore, targeted engagement can be done in addressing the determinants of vaccine hesitancy. Such factors include the patient-clinician relationship wherein fostering a positive and trusting relationship is essential in patients' compliance with the provider's recommendations (5). This means that information-seeking behaviours and trust in healthcare providers differ from alternative sources of info (e.g., one's

social circle such as friends and relatives) for health-related advice is associated with increased chances for vaccine uptake (1,2).



Taking a look at the factors that affect vaccination uptake, it has been noted that risk perception is a key factor that influences individual attitudes of vaccination in influenza and tetanus vaccines (3). Thus, this emphasises the role of healthcare providers in educating the public on vaccines on the importance of vaccination. Educational interventions targeted to healthcare providers and practical recommendations can prove a formidable strategy in increasing vaccine uptake (6). In relation, there is a vast amount of provider-specific educational tools designed by reputable national organisations; however, these resources are not fully maximised. This; then brings the idea that providers' knowledge of immunisation combined with sound governance and management of relevant regulatory bodies (promotion of mass vaccination, reimbursement of vaccines by the appropriate payers, and evaluation of existing vaccine-related educational resources) can be instrumental in achieving increased vaccine coverage and uptake (3,6).

Public health policies and educational institutions also have a role in addressing the public concerns of vaccination. Schools can be a source of health-related information. In lieu to those who do not have access to healthcare services, as the collaboration between healthcare providers, public health institutions, and the education sector can nurture collec-

tive norms and values that promote health-seeking behaviour behaviour,; despite misinformation and sensationalised news on vaccines in mass media (5). In fact, for HPV vaccinations, school-based vaccination delivery methods are proven effective at reaching girls within the WHO recommended age range (9-13 years old) (7). Being able to conduct vaccinations, whether it be on the school or a health facility, increases the prospects that individuals will be able to receive their vaccinations on schedule. Furthermore,; furthermore, collaborations among schools and healthcare facilities can also promote the delivery of vaccination services for out-of-school children (7).



Overall, vaccine communication on a large scale also has its merits and challenges, whether from the providers themselves, the private sector, and or other relevant stakeholders. While the internet and mass media have brought negative connotations regarding vaccine information, social media can be a platform for healthcare companies to engage with their consumers and tailor their services accordingly to the needs of their consumers (5). As mentioned, tailored training in vaccine communication strategies for healthcare providers, together with targeted counseling approaches, can be beneficial so that healthcare providers become public health educators and ambassadors who provide the public with factual information on vaccine-related matters (2). With this being said, there are indeed many challenges that influence vaccine uptake in the general population; however, various solutions can address the root causes of these problems. Education is one thing, but interprofessional collaboration is essential in brainstorming effective public health strategies that promote vaccination coverage and reduce the overall burden of vaccine-preventable diseases.

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AstraZeneca Affects People with Thrombocytopenia

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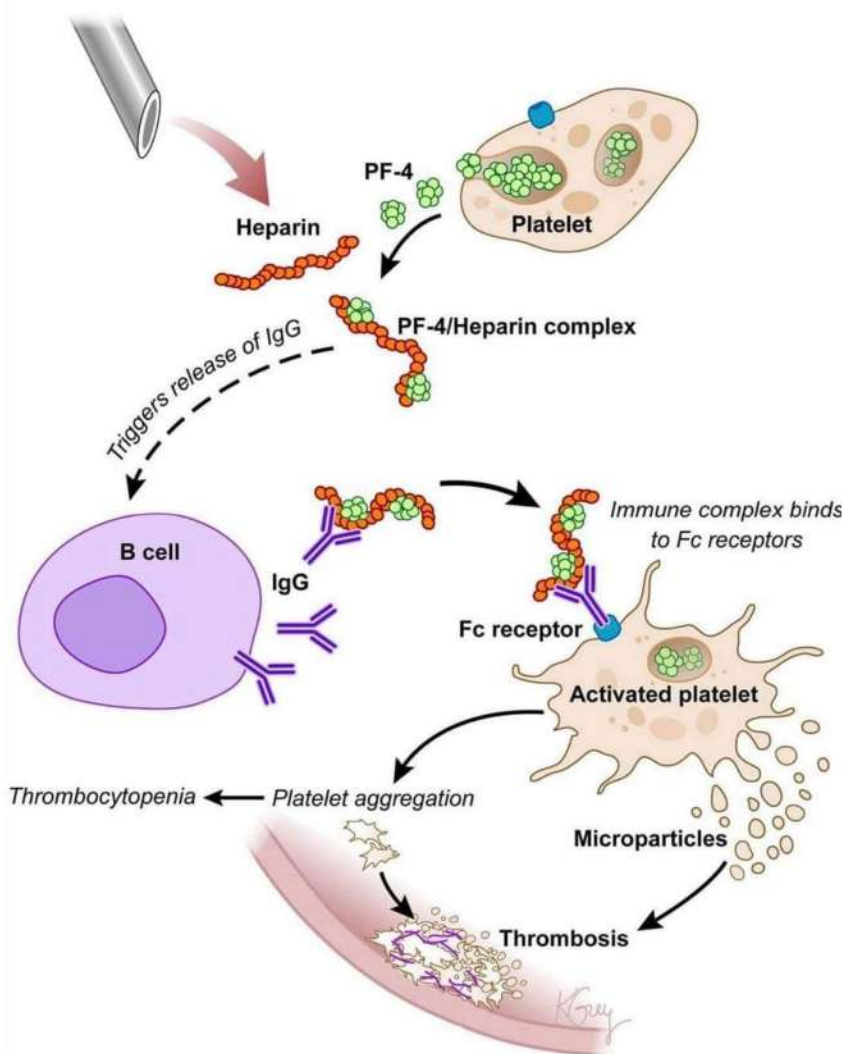
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The definition of vaccination is injecting antigen which can be an intact killed organism or an attenuated organism to induce antibody production in our body. This can help you protect your body from diseases.

Reportedly, some COVID-19 vaccines, especially AstraZeneca and possibly Johnson & Johnson, can cause thrombotic thrombocytopenia which is a blood clotting condition; this condition indicates the low platelet count and is found in some vaccinated people, especially in 30-to-55-year-old females who reside in Scandinavia regions such as Norway and Denmark. Moreover, they are diagnosed with cerebral venous sinus thrombosis. Normally, platelets form clots to stop bleeding; and fibrin, which results from clotting factor, also helps cease the damage of cells or wounds. Heparin is a medication used as an anticoag-

ulant that helps prevent the activity of fibrin. Therefore, this results in the decrease of clotting ability of the blood. However, the platelet count still depends on each individual's body. AstraZeneca is filled with spike protein of SARS-CoV-2, this spike protein can bind antibody at the binding-site domains as PF4 (platelet factor 4), protein in the body, binds to heparin. This activates the release of antibody from white blood cell and results in blood clotting. Therefore, this increases the possibility of thrombosis. This condition is called vaccine-induced immune thrombotic thrombocytopenia (VITT).

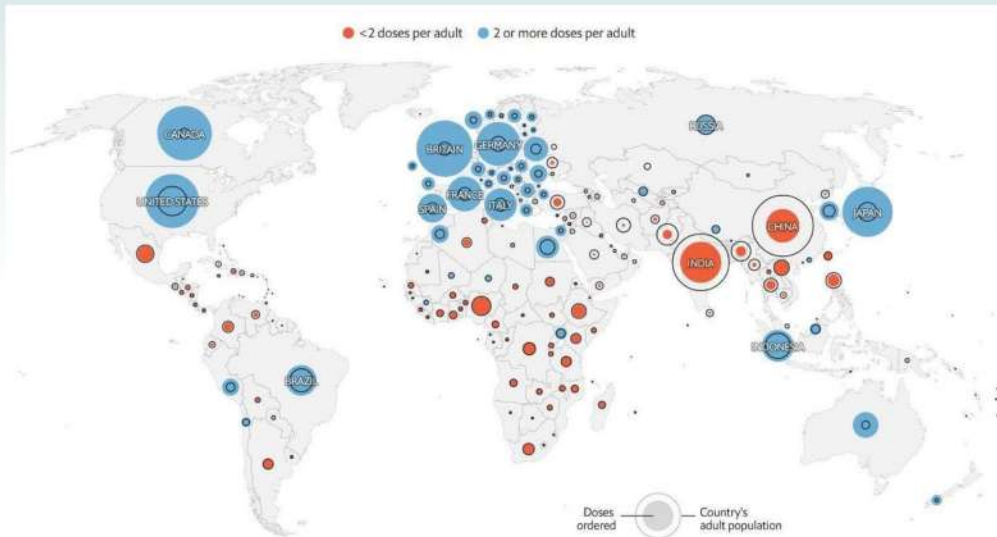


Further research was conducted on antibodies that are secreted without the activation of heparin but are activated by the vaccine instead. The research team takes the serum of patients who have coronavirus along with thrombocytopenia to separate antibodies that bind with PF4. That antibody is also taken to bind with spike protein, and it turns out that they do not bind with each other. This indicates that antibody binding PF4 might not be activated by spike protein from the vaccine like AstraZeneca, but it may result from other unknown factors.

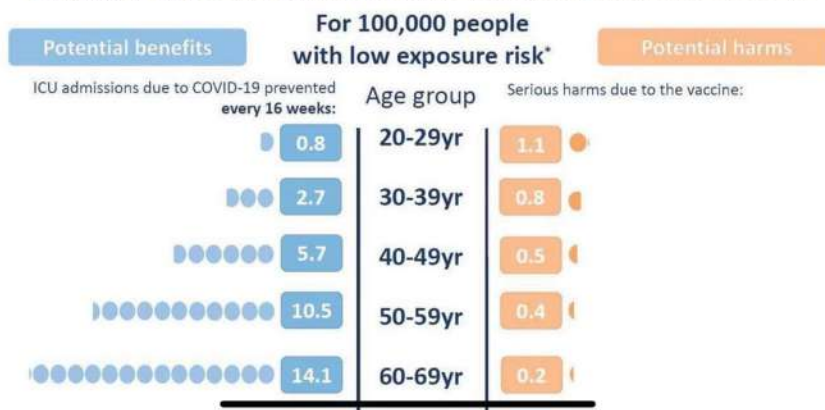


General information of the population who have VITT problems is headache, paralysis, blurred vision, fatigue, and level of platelets less than 150 000 cells per cubic millimetre (thrombocytopenia). VITT is cured by the inhibition of using heparin. However, in cases of healing blood clots, recommended medications are rivaroxaban, apixaban, and edoxaban. We know that blood clots come from vaccination, and the question is, "Should we continue to get vaccines?"





Weighing up the potential benefits and harms of the Astra-Zeneca COVID-19 vaccine



First, we need to consider that whether our country has enough types of vaccines for all the people. For instance, in Germany and France, Astra-Zeneca is used in the first injection, and Pfizer and Moderna are used in the second injection. The second injection is critical because it boosts and multiplies immunity to oppose pathogens that can mutate due to the first injection. In Denmark, AstraZeneca is not allowed, whereas in Thailand we use AstraZeneca. Second, doctors should evaluate the risks and benefits of injecting vaccines. VITT can be found in the elderly or overweight people, so we need to study those cases specifically.

Last but not least, COVID-19 is an emerging infectious disease. The information which we have now will still need to be studied in the future.

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COVID-19 Vaccine Hesitancy and the Role of Physicians



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One of the most successful public health initiatives is vaccination. According to the World Health Organization, it is a method of protecting a population from harmful diseases by using the body's natural protection mechanism, the immune system, to create resistance to particular pathogens, thus strengthening the immune system. Vaccine demand is on the rise these days, especially the COVID-19 vaccine demand. Scientists, doctors, and other healthcare professionals are working hard on making the vaccine accessible for the world's population in order to establish herd immunity and prevent a repetition of the pandemic. Several citizens have expressed their reservations and oppositions towards vaccination ever since the COVID-19 vaccine was launched a few months ago. There are also those who have not completely rejected the vaccine but are concerned about the short and long-term side effects that could occur after vaccination. This article will discuss the concept of vaccine hesitancy, the causes of vaccine hesitancy, what people should remember about vaccines, and how medical practitioners should treat vaccine-hesitant patients.

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Many people developed vaccine hesitancy after discovering that the COVID-19 vaccine was available from several pharmaceutical companies. Vaccine hesitancy is identified as a delay in accepting or refusing a vaccine. Vaccine hesitancy varies depending on the form and dosage of the vaccine. Vaccination refusal can be prompted by patients or their parents; as a result, vaccine hesitancy can be triggered by a variety of causes, at different times and locations. Generally, vaccine hesitancy can be caused by three factors: complacency, lack of convenience, and lack of confidence. First, complacency in vaccination means that the patient believes that they do not need to be vaccinated and that they are not liable for anything in the event of disease transmission. Second, in this case, a lack of confidence suggests that the patients are uncertain about the possible side effects and dangers of vaccination. It is also possible that the patients have doubts about their health system's effectiveness and capabilities. People may be skeptical of the COVID-19 vaccine because the vaccine trials took place for such a short period. Third, due to a number of factors such as physical availability, geographic location, and affordability, it might not be convenient for the patients to have complete access to the vaccine. Since the COVID-19 vaccine has only recently begun its administration around the world, it is still inaccessible to a significant number of citizens in many countries. All of these factors contribute to a high vaccine supply but low vaccine acceptance.

Patients should ensure that they are concerned about the facts of the COVID-19 vaccine before assessing its efficacy. To begin with, the COVID-19 vaccine will help patients avoid being infected with the virus by collaborating with the immune system to combat the virus. Additionally, vaccination will benefit the population by generating herd immunity. As a result, people will feel comfortable amongst their peers, raising the likelihood of a return to normalcy. Following that, the variety of COVID-19 vaccine research has also aided in determining the vaccine's safety and efficacy. The doctors in charge of testing the vaccine have also ensured that the patients, as well as the reference vaccine used in the clinical trials, are diverse. Furthermore, patients can get a vaccine even though they have already had COVID-19. Despite the fact that the COVID-19 vaccine was developed quickly, it did not skip any steps. The vaccines were created using methods that have been developed and tested over a long period and are designed to rapidly produce and thoroughly test vaccines in the event of a pandemic, such as what we are experiencing with COVID-19.

Since the majority of the population searches the internet and news for information about COVID-19, the way the media depicts the effects of the COVID-19 vaccine could have an impact on patients' interest in the vaccine. COVID-19 vaccine details can be false and misleading. Physicians must be able to communicate with patients about the effectiveness, necessity, and potential side effects of COVID-19 vaccination in a clear and understandable manner. It is recommended that physicians suggest vaccination as the first line of defense in the treatment and prevention of disease. Patients will be able to put their confidence in the successful and approved vaccine, which will reduce their apprehension. Following that, doctors must be open and truthful about the vaccine's side effects, as well as reassure patients about the vaccine's testing methods. This should be done in accordance with the concept of patient beneficence in medical ethics, that is recommending the best option without causing harm to the patient. Manufacturer legislation, independent vaccine guidelines, and continuous monitoring of adverse effects are also part of the evidence-based approval process. In addition to vaccine recommendations, physicians may share personal stories and experiences about vaccination. This approach would enable patients to relate it to themselves and their circumstances, reducing their fear of vaccination. Most notably, it is recommended that clinicians, when consulting with the patients, should concentrate on the fact that vaccines are a means of shielding a child and society from the spread of COVID-19. However, given the patient's autonomy and right to accept or reject treatments, no discussion or elucidation may force the patient to accept the vaccine.

To summarise, vaccine hesitancy refers to a pause in vaccination acceptance due to a variety of factors. Even if there are many side effects such as high blood pressure, fever, and muscle pain, the vaccine's safety can be ensured as it has been thoroughly tested in accordance with safety regulations. When dealing with vaccine-hesitant patients, doctors should remember to give patients unbiased vaccine advice and to value their autonomy when they reject the treatment and care. There are a variety of approaches to dealing with vaccine apprehension in patients; doctors must first consider their concerns and then recommend the best treatment options available. Everything in this world has its benefits and flaws, depending on our point of view. Vaccines are now our best chance for preventing and stopping this pandemic. Although the development of the COVID-19 vaccine may take a very short time, its side effects and efficacy have already been evaluated and will be further developed in the future as part of scientific intervention. As a result, when determining whether or not to get vaccinated, patients have to weigh multiple variables and collect a lot of information in order for their decision to be considered legitimate.

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World Immunisation Week: Be Considerate, Be Vaccinated!

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We all unanimously believe that “Prevention is better than cure.” One such means of prevention that revolutionised the medicinal field is vaccination.

MILESTONES IN VACCINATION

Eradication of smallpox worldwide thanks to global vaccination programmes led by World Health Organization (WHO).

VACCINES - A SHOT OF LIFE; A SHOT FOR GLOBAL HEALTH

WHO promotes the last week of April as World Immunisation Week. It is a global public health campaign to raise awareness and increase rates of immunisation against vaccine preventable diseases around the world.

GLIMPSE OF VACCINE PREVENTABLE DISEASES:

Diphtheria
Tuberculosis
Poliomyelitis
Hepatitis-B
Pertussis
Tetanus
Human influenza-B
Measles
Rubella
Diarrhoea caused by rotavirus
Japanese encephalitis

CONCERNS ABOUT VACCINES: LET US BUST ALL THE MYTHS AND STATE THE FACTS!

Myth 1: Vaccines contain harmful ingredients.

Fact: Every ingredient, whether beneficial or harmful, depends on the dose. Vaccines contain ingredients at a dose that helps to induce robust antibody response and it is not enough to cause any harm.

Myth 2: Vaccines contain infectious particles causing diseases.

Fact: It is impossible for inactivated (killed) vaccines to cause diseases. Live attenuated (weakened) vaccines may cause mild symptoms (rashes at few spots in case of measles vaccine), but it is not a serious issue. They are just signs showing that the vaccine is working.

EXCEPTION: Live attenuated oral polio vaccine tends to acquire neurovirulence (on mutation) and a few cases of vaccine-induced poliomyelitis, but the incidence is very low. Vaccines stimulate the immune system to produce an immune response similar to natural infection and not the actual disease.

Myth 3: Vaccines cause long term complications and severe adverse effects.

Fact: Minor anaphylactic (allergic) reactions are common at injecting site. Mild fever and tiredness are expectable, and they are temporary too. Severe long term health issues following vaccinations are rare. The benefits of vaccination greatly outweigh the slight risks.

Myth 4: DPT (diphtheria, pertussis, and tetanus) vaccine causes sudden infant death syndrome (SIDS).

Fact: Adverse report following vaccination does not always mean that the vaccine caused that event. Studies found no association of SIDS among immunised children.

CURRENT REGARDS ABOUT COVID-19 VACCINES:

Safety issues:

COVID-19 vaccines do not contain any live virus, so vaccination is very safe. The vaccines consist of inactivated virus.

Trust issues:

Whether COVID-19 vaccines are working?

Yes. Adequate immune responses develop 2-3 weeks after completion of the second dose of vaccine.

Since the second wave of COVID-19 is due to new mutant strains, are the vaccines really protecting us? Do we need to get vaccinated with that? Will the vaccines respond to mutated strains?

The body responds to vaccination by making more than one type of antibodies to viral parts including spike proteins of the virus. So, vaccines are effective for mutant strains too. Immune response acquired through vaccines greatly help to avoid serious complications of COVID-19.

So, all of us must get vaccinated without any second thought.

Queries on COVID-19 vaccination:

Does a recovered COVID-19 patient need to get vaccinated?

Since there is no convincing evidence regarding long-lasting immunity conferred by COVID-19 during the convalescent period, recovered COVID-19 patients also need to get vaccinated to prevent further exposure.

Vaccination for COVID-19 patients:

COVID-19 patients defer vaccination for 14 days after symptoms resolution to avoid spreading the infection to others at the vaccination site.

Vaccination for pregnant women:

Since no studies ensure COVID-19 vaccines safety during pregnancy, pregnant women will not get vaccinated at the first line. Pregnant women who are at higher risk for SARS-CoV-2 infection or with any other co-morbidities should consult the health care provider to get vaccinated.

Vaccination for individuals with co-morbidities like hypertension (HTN) and diabetes:

Such individuals should get vaccinated to prevent severe complications of COVID-19.

Vaccination for immunocompromised:

COVID-19 vaccines do not contain any live virus. Since the vaccines contains inactivated (killed) virus, it is safe to administer for immunodeficient individuals.

Is there any chance to get COVID-19 after vaccination?

The chances are very rare. Even if that happens, antibodies developed due to the vaccines help to attenuate COVID-19 complication. Follow precautionary measures (sanitising, social distancing, masks, etc.) even after vaccination for further protection.

LET'S GET PROTECTED TOGETHER!

Vaccinations not only protect those who got vaccinated, but also protect those who cannot be vaccinated, such as infants and pregnant women. In many instances, some people cannot receive the vaccines because of severe allergic reactions. They depend on herd immunity (if a large population of the community is immunised against a contagious disease, it reduces the chance of an outbreak and protect those who cannot be immunised).

"IMMUNISE FOR A HEALTHIER FUTURE"

Let us make sure every one of us gets vaccinated and ensure a healthier future and a healthy environment.



PHARMACEUTICAL USE DURING PREGNANCY



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Introduction

Born with syndactyly, I have suspected my mother's antibiotics exposure as the cause. Medication prescription to pregnant women should consider drug teratogenicity and maternal pharmacokinetics variations. This report will discuss the need to balance maternal advantages and foetal harms when managing medical conditions during pregnancy. Physicians need more situational-based guidance beyond the current drug classification system, and maternal communication and a comprehensive understanding of drug risks are crucial in consultations. Altering the drug dosages and schedules to keep up stable maternal condition is vital.

Classification of Drugs according to Foetal Risk

Teratogens are agents that induce or increase congenital malformations in functional or structural aspects. (Miller, Peters, and Schaefer, 2007). Many neonates have retarded growth or functional ab-

normalities from teratogenic effects (Gilbert-Barness, 2010), including intrauterine growth restriction and postnatal effects (Vickers and Brackley, 2002). As misunderstanding of teratogenic risk may cause unnecessary foetal morbidity and mortality, comprehensive drug utilisation guidelines are needed (Koren, Pastuszak, and Ito, 1998).

In 1979, the US Food and Drug Administration (FDA) classified drugs with 'Use-in-Pregnancy Ratings' (Table 1), based on the level of known teratogenicity. The Teratology Society suggested replacing it with statements involving developmental toxicity and potential teratogenic risks (Teratology Society Public Affairs, 1994). This system was criticised for being susceptible to misinterpretation and misapplication (Andrade et al., 2004). In June 2015, the Pregnancy and Lactation Labeling Rule (PLLR) replaced the original categorisation system. The pregnancy section in PLLR is classified further into 'Risk Summary,' 'Clinical Consideration,' and 'Data' (human and animal) (Bookstaver et al., 2015).

Pregnancy Category Rating	Level of Evidence	Accompanying Text Labeling Requirement
A	No risk in human studies; Adequate and well-controlled human studies have failed to demonstrate a risk to the fetus in the first trimester of pregnancy (and there is no evidence of risk in later trimesters)	None
B	No risk in other studies; Animal reproduction studies have failed to demonstrate a risk to the fetus and there are no adequate and well-controlled studies in pregnant women	Nevertheless, because the studies in humans cannot rule out the possibility of harm, [name of drug] should be used during pregnancy only if clearly needed
C	Risk not ruled out; Animal reproduction studies have shown an adverse effect on the fetus and there are no adequate and well-controlled studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks	[Name of drug] should be given to a pregnant woman only if clearly needed
D	Positive evidence of risk; There is positive evidence of human fetal risk based on adverse reaction data from investigational or marketing experience or studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks	If this drug is used during pregnancy, or if the patient becomes pregnant while taking this drug, the patient should be apprised of the potential hazard to the fetus
X	Contraindicated in pregnancy; Studies in animals or humans have demonstrated fetal abnormalities and/or there is positive evidence of human fetal risk based on adverse reaction data from investigational or marketing experience, and the risks involved in use of the drug in pregnant women clearly outweigh potential benefits	[Name of drug] is contraindicated in women who are or may become pregnant. If this drug is used during pregnancy, or if the patient becomes pregnant while taking this drug, the patient should be apprised of the potential hazard to the fetus

Table 1. FDA Pregnancy Category Ratings with Required Package Labeling Statements Prior to June 2015 (Bookstaver et al., 2015)

Drugs are placed into different categories with similar definitions in the FDA, Swedish, and Australian systems. The FDA system is more restrictive about drugs in categories A and B described in Table 1, thus causing higher curettage rates (Demir, Arici, Demir, and Tunçok, 2012). Teratogenic drug safety is not effectively supported in all existing systems due to lack of dose and pregnancy period in references (Dhombres, Fung, Rodriguez, and Bodenreider).

Effects of Pregnancy on Pharmacokinetics

Pharmacokinetics (PK) refers to the time course of drug absorption, distribution, metabolism, and excretion to characterise therapeutic dosage and adverse effects of drugs (Gibaldi, 1976). Physiological and hormonal changes begin mostly in the first trimester and increase linearly until par-

turation (Anger and Piquette-Miller, 2008). Variations in maternal physiology affect PK and efficacy of drugs like transplacental passage (Vickers and Brackley, 2002). With changes in body drug concentration, physicians should alter the drug schedules or dosages (Little, 1999).

Absorption

Elevated serum progesterone in the third trimester (Dawood, 1976) reduces small intestine motility and gastric emptying, resulting in a long time for drugs to reach a high concentration in plasma. An increase in mucus production and gastric emptying time will reduce drug absorption, meaning that the efficacy of oral drugs will decrease. Nausea related to pregnancy is also a concern for drug absorption (Dawes and Chowienczyk, 2001).

Distribution

The total plasma volume increases with higher total body water content and the plasma protein albumin concentration falls during pregnancy. With fewer albumin binding sites, free active drug dose is raised and the volume of distribution of hydrophilic drugs increased (Dawes and Chowienczyk, 2001). The dose of lipophilic drugs which cross the placenta rapidly will also increase as body fat increases in pregnancy (Anger and Piquette-Miller, 2008).

Metabolism

Hormone level variation in pregnancy down-regulates some enzymes. Extrahepatic enzymes like cholinesterase also diminish metabolic activity (Little, 1999). The greater hepatic blood flow serves as a coping mechanism to increase the enzyme metabolic capacity in pregnancy (Anger and Piquette-Miller, 2008). Hepatic cytochrome P-450 enzymes induced by progesterone or oestrogen also have a higher metabolic rate and are able to increase the rate of drug elimination (Dawes and Chowienczyk, 2001).

Excretion/ Elimination

During gestation, pulmonary function increases. This enhances drug eliminations through respiration. Renal excretion is the most efficient elimination process (Reynolds and Knott, 1989). Higher renal blood flow increases glomerular filtration rate (Little, 1999), then increases renal elimination capacity and drug clearance rate (Bogaert and Thiery, 1983; Vickers and Brackley, 2002).

Teratogenic Drug Classes

Type of agent, frequency, dose, duration, and time of exposure is often proportional to teratogenic risks. The first half of pregnancy is the most vulnerable time for the growing foetus (Health, 2010).

Antibiotics

Antimicrobial agents can cross the placenta and cause toxicity. Aminoglycosides that inhibit protein synthesis show ototoxicity and nephrotoxicity in the newborn (Carter and Wilson, 1965). Aminoglycosides exposure during the first trimester reports irreversible bilateral congenital deafness. Long-term effects (e.g. asthma or eczema) in newborns are associated with antibiotic exposures during pregnancy. Permanent discolouration of teeth and bones are seen in tetracycline exposure beyond the second trimester (Bookstaver et al., 2015). Tetracyclines can cause palatine cleft, neural tube defects, and severe congenital cardiovascular abnormalities (Fiol, 2005).

Analgesic drugs

Nonsteroidal analgesics like aspirin that inhibits prostaglandin synthesis brings higher neonatal deformity rate and lower birth weight (Niederhoff and Zahradnik, 1983). Ibuprofen brings specific congenital anomalies like gastroschisis, cardiac septal defects, and orofacial clefts. Prolonged use leads to premature closure of foetal ductus arteriosus and cryptorchidism (Schaefer, Peters, and Miller, 2015).

Antidepressants

Antidepressants are avoided as cardiovascular effects and neural tube defects like exencephaly are seen (Vickers and Brackley, 2002). Infants with intrauterine exposure had higher birth weight and lower Apgar scores. Selective serotonin reuptake inhibitors exposure is consistent with impaired language function (Galbally, Watson, Boyce, Nguyen, and Lewis, 2020). Neonatal intoxication and postnatal withdrawal syndrome are teratogenic effects that can be seen in infants (Bethenod and Frederich, 1989). Extrapyramidal symptoms may also be seen in infants. (Levy and Wisniewski, 1974).

Benefits and Risks of Anti-epileptic Drugs (AEDs)

Antiepileptic drugs (AEDs) are involved with the production and detoxification rates of metabolites (Vickers and Brackley, 2002). Epilepsy treatment in pregnancy is challenging as foetal and maternal risk associated with maternal seizures has to balance against AED's potential teratogenic effects (Tomson, 2007).

Maternal benefits

Women with epilepsy (WWE) have higher seizure frequency during pregnancy, labour and delivery (Zahn, Morrell, Collins, Labiner, and Yerby, 1998). During pregnancy, seizures can cause maternal hypoxia and acidosis. Avoiding all seizure types in pregnancy is desirable for maternal physical wellbeing (Pennell, 2003).

It is unreasonable and unsafe for WWE to stop the medication due to their frequency and severity of epilepsy. Seizures during pregnancy have higher maternal risks, such as cardiovascular effects than drug exposure (Etemad, Moshiri, and Moallem, 2012). Loss of seizure control decreases plasma concentrations. There is a higher death rate among WWE due to seizures (Tomson, 2007).

WWE represent up to 0.5% of pregnant women, and 80% of these women prescribed with at least one AED are able to control their seizures. The frequency of seizures increases as the AED dose decreases to protect the foetus (Schaefer et al., 2015). Long-term AEDs administrations are able to control seizures (Dansky, 1991). Taking AEDs may cut seizures in the second or third trimester (Thomas, 2006).

Hepatic CYP inducers like carbamazepine inhibit sodium channels and block repetitive firing of action potentials. Reduction of AEDs can trigger status epilepticus, withdrawal responses and seizure clusters (French and Gazzola, 2013).

Foetal risk

The use of AED increases foetal major malformations risk two to threefold (Schaefer et al., 2015). AED exposure in the last trimester brings the most harmful cognitive outcomes. Intra-uterine growth retardation, microcephaly, infant motility, congenital malformations (neural tube defect, urogenital defect, and congenital heart disease), mild facial dysmorphism, inguinal hernia, limbs, hip, joint or renal anomalies reported (Pennell, 2003). Postnatal abnormalities like visual disturbances and otitis media observed. Developmental problems like autism spectrum disorders and verbal vs non-verbal abilities are also observed (Schaefer et al., 2015).

Foetal malformation rates increase with each AED prescribed. Polytherapy increases malformation risk. Some AEDs impair foetal folate absorption and cause postnatal developmental delay like lower intelligence quotient (IQ). Maternal use of hepatic-enzyme-inducing AED drugs may also induce foetal haemorrhagic disease (Zahn et al., 1998).

Prescription Issues for Medical Practitioner to Consider

Using medications during pregnancy poses a potential risk to the mother and foetus (Andrade et al., 2004). Sometimes physicians stop medications due to insufficient reliable information to avoid emergency that does more harm than the drug itself (Martin, 2017). However, the concern of underprescribing for pregnant women is higher than overprescribing. Not all drugs in pregnancy are useless or dangerous, with less than 1% being classified as teratogens (Haramburu, Miremont-Salamé, and Moore, 2000).

Physicians' major concern is the foetal harm of agents (Anger and Piquette-Miller, 2008). Aware of pharmacokinetic alterations in pregnancy, clinicians should check evidence of drug choice, dosing, duration of therapy, and monitoring (Bookstaver et al., 2015). Careful weighing and discussion of benefits versus risks are required, especially for teratogens (Niederhoff and Zahradnik, 1983). Drugs could be prescribed in pregnancy when the benefits justify the risks (Demir et al., 2012). In most situations, maternal benefits outweigh the child's risks (Olesen et al., 1999).

The stable maternal disease is the most favourable outcome. Accurate patient information can avoid unnecessary anxiety and treatment non-compliance. Using the lowest effective dose of the safest drug for pregnant patients, polypharmacy avoidance, and health guidance like avoiding smoking and taking supplements are recommended. Counselling and detailed scanning can help to avoid unnecessary intervention (Vickers and Brackley, 2002).

Additionally, physicians should consider the consequences of 'drug-free pregnancy'. For example, higher suicidal ideation and hospital admission rates have been reported in pregnant women who drop antidepressants abruptly. Abrupt discontinuation also causes re-emergence of primary psychiatric disorder and with-

drawal symptoms such as perceptual disturbances in mainly vision and hearing. Medical practitioners should give effective counselling to reassure women who stop medicine due to their own fears or other's advice to take therapy (Einarson, Selby, and Koren, 2001).

To promote safe and quality therapy, physicians should be familiarised with all possible teratogenic risks of drugs that treat the mother without affecting the foetus (Fiol, 2005). While teratogens taken at any developmental stage can potentially cause disruptions, most structural defects are seen in embryonic period exposure (Gilbert-Barness, 2010). Doctors may advise patients to avoid certain drugs in the first trimester. During the pre-embryonic period, drug exposure may cause pregnancy failure. Risk is minimal if pregnancy is viable. In the embryonic period, when organogenesis occurs, teratogenic effects like genital anomalies are observed. Serious functional but no structural abnormalities are seen in late pregnancy drug exposure (Vickers and Brackley, 2002). Increasing malformation rates with severity elevates the chance of spontaneous miscarriage or shortened life span (Chung, 2012).

Clinicians should individualise effective treatment as patients with the same dosage may translate into different clinical responses (Perrucca, 2005). For example, genetic factors, like metabolism, can impact the manifestation of teratogenic effects (Schaefer et al., 2015).

Physicians should offer pregnant WWE with stable medication setting and follow-up sonography. They should also check liver and kidney function as well as haematological parameters, like plasma AED concentration of which protein binding changes in pregnancy (Schaefer et al., 2015). Suggest frequent nonstress tests for high-risk WWE (Seale, Morrell, Nelson, and Druzin, 1998). If an earlier child was born with anomalies and maternal drug exposure, clini-

cians should alter the regimen in the next pregnancy. A higher risk of recurrence is observed for drug-specific pharmacologic susceptibility (Schaefer et al., 2015).

Conclusion

Several categorisation systems are established for different drugs, including some teratogenic classes. As pharmacokinetics changes with pregnancy and certain drug classes can have severe teratogenic effects, clinicians should prescribe medications only when maternal benefits outweigh the foetal risks.

Reflection

Not citing references manually like my assignment in Foundations, I used Endnote efficiently. I drew mind maps to outline searching keywords and structure instead of drafting directly from research papers. Establishing a well-planned timeline and word allocation, I finished my assignment earlier without a lot of irrelevant details.

At the beginning of my research, I misunderstood the tasks and tried to input drug classes into a categorisation system. I was so lost as the terms were unfamiliar and drugs in one class often overlapped with different categories. Through discussion with my colleagues, I realised my fault and made correction immediately.

Knowing only pharmacodynamics and pharmacokinetics as a beginner, I have gained a comprehensive understanding of drug safety compared to risks for several drug classes. I now understand that safe drug use is not impossible to achieve in pregnancy after reading significant powerful research.

As few of the resources in this report are not published recently, there may be existing confounding bias due to epigenetic changes. For prospective research, I will make sure to look for more modern papers in different databases other than PubMed.

Since animals are the testing subjects in some research, the difference in their biological mechanisms from humans may cause subject bias and affect external validity. I will mostly prefer studies that include human trials in future searches. I will also attempt to look for systemic reviews that incorporate varieties of cultural medications within international standards. With more practice, I will be confident in selecting research that achieved the CRAAP test standard.

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A blue-tinted landscape featuring a dense forest of trees in the foreground and a misty, mountainous background. A large, semi-transparent circular graphic is positioned on the right side of the image. The word "Hob" is written in large, white, sans-serif font across the middle of the image, partially overlapping the circular graphic.

Hob

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but his stiff legs would not support him
he was too fat besides, and too weak,
"Back on your feet, Piggy," someone
Sam paid him no mind. *I'll just lie down*
eyes. It wouldn't be so bad, dying here.
colder, and after a little while he wouldn't
his lower back or the terrible pain in his
could feel his feet. *I won't be the first to*
Hundreds had died on the Fist, they had
more had died after, he'd seen them
on the tree and eased himself
he knew, but he couldn't
stared up

GEORGE R.R. MARTIN



bies

MARTIN

The mail was too heavy, and I was too tired. I growled as he went past, but I was in the snow and close to the fire. I couldn't possibly be any warmer. I was able to feel the ache in my shoulders, no more than a dull throb. I die, they would say, they would say they were safe in his parchment pouch, hoping he would never need

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brother to Dickon and the girls. He was sorry to die too, but better than to have been killed by the men he had died on the Fist, good men and true, not squeaking fat boys like him. At least he would not have the Old Bear hunting him through the snow. I got the birds off. I did that right, at least. He had written out the messages ahead of time, short messages and simple, telling me to attack on the Fist of the First Men, and then he had tucked them into his parchment pouch, hoping he would never need

Sam had been sleeping. He thought he was safe. He opened his eyes snow was falling all around him. He grabbed bows and spears. He was the only one nearby, and the big



KEEP STAYING ON TRACK WITH OUR FITNESS PLAN DURING PANDEMIC: NOTHING CAN EVER TAKE OUR “BODY GOAL” AND HEALTHY LIFESTYLE DREAMS, EVEN QUARANTINE

Looking back to reality, we are still in “a long way to go” in coronavirus battle and it has always been challenging and emotional. One of the many challenges of the COVID-19 pandemic was the massive abrupt changes to day-to-day schedules. People began to normalise things they used to do and adjust to the current condition such as by working from home and doing most of the activities virtually. Gyms, recreation centres, and parks were closed, curbing exercise routines. Stress levels and mental health issues skyrocketed for many, with eating and drinking becoming major outlets and means of reward (1). Indeed, many studies showed a link between high-stress levels and overeating (2,3). But if we try to view the same scene from different perspectives, others have used the change in routine as an opportunity to exercise more and have a better lifestyle, such as what I saw on my friends’ Instagram posts and stories. People approach a new set of circumstances and cope with the changes in this pandemic situation differently.

“Nowadays, whenever I scroll either Instagram posts or watching Instagram stories, I could not count how many times I am impressed with the drastic changes in my friends’ appearances. The differences are so significant and their looks just beyond people recognition by having their muscles built, glowing up, and looking healthier even during quarantine, and it inspires me to do so.”



Annisa Dewi Nugrahani
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When the environment and our routine changes, we can use it as an opportunity to treat ourselves well in those really tough times such as living healthier, being more productive, as well as losing weight and getting in shape during quarantine with routine exercise pattern. Regular exercise is essential for everyone under normal circumstances. However, during the COVID-19 pandemic, routine exercise pattern is especially crucial since:

- exercise boosts the immune system (moderate-intensity exercise has been proven to have immune-boosting benefits that help our body fight off infections such as COVID-19);
- exercise may prevent weight gain and enhance weight loss (exercise can help burn extra calories produced by dietary changes and offset the effects of a sedentary lifestyle as well);
- exercise is good for mental health (exercise is a proven mood-booster, reduces stress and anxiety that helps adults build emotional resilience);
- exercise improves sleep (evidences suggest that regular exercise pattern helps people improves their sleep quality as well as to boost immune system); and
- exercise also beneficial for older adults or people with comorbid such as diabetes, heart disease, arthritis, etc. Overall, exercise can boost energy, improve balance, strength, mobility, flexibility, cardiovascular health, and well-being (4,5).

As clinical clerkship medical students who also get reflected with the impacts of the COVID-19 pandemic on medical education, I also experience what it feels like to work from home and to get used to doing normal things differently – virtually. Sometimes it has been exhausting, and I prefer a clinical-practice oriented session rather than just working at a laptop all day long. It also raises questions, whether this online education worth the frustration? Once upon a day, suddenly when I felt so overwhelmed due to this condition, I began to seek new sensations, then I decided to manage myself with good habits such as getting into an exercise routine because I believe, it is worth the benefits. Before starting a new exercise habit, I did some research to get the most out of my workout.

In order to create a routine exercise pattern that will be more effective in reaching our goals and fitness level, understanding F.I.T.T (frequency, intensity, time, and type of exercise) elements is important (1). The first thing to set up with your workout plan is frequency—how often you will exercise depends on a variety of factors including the type of workout (cardio workouts or muscle strengthening), how hard you are working, your fitness level, and your exercise goals. American College of Sports Medicine exercise guidelines recommends moderate exercise for five or more days a week or intense cardio for three days a week while strength training is recommended to do in two to three non-consecutive days a week (2). The second step is to identify the intensity, as to how hard we should work during exercise depends on our type of workout. For a cardio workout, the general recommendation is to work at a moderate intensity. For steady-state workouts and interval training, the recommendation is to work at a high intensity for a shorter period. Meanwhile, for strength training, our intensity is made up of the type of exercise, the amount of weight we lift, and the number of reps and sets we do (3). The next element is how long you exercise during each session (time). The exercise guidelines suggest 30 to 60 minutes of cardio, but the duration of our workout depends on what we are doing. For strength training, the duration also depends on the type of workout we are doing and our schedule. For example, a total body workout could take up to an hour, whereas a split routine could take less time because it requires smaller groups of muscles (4). The last part of F.I.T.T, type (cardio workout or strength training) is an easy one to manipulate to avoid overuse injuries or weight loss plateaus (6). After understanding and creating the F.I.T.T formula, then we just do the actions by working out either indoor at home or outdoor. Both indoor and outdoor exercises have their own benefits and risks, but we can manage them. YouTube channels, Instagram, and other social media also give us killer workout for free as well as inspiration for indoor workout variations. On the other side, British Medical Journals (BMJ) also recognise that the majority of the population does not have the autonomy to exercise consciously and safely at home. Therefore, the reopening of practice places must be accompanied by appropriate guidelines such as hygiene (handwashing/hand sanitising regularly), safety (mask use and daily health checks for symptoms, avoid the use of a mobile phone in shared environments), and physical distancing (7). In addition, it is also highly recommended to kick off our routine exercise pattern by building a network of our loved ones as a support system throughout this process especially when the going gets tough.

Setting goals, maintaining a goals-based workout or exercise schedule with a healthy lifestyle, enjoying the process with commitment, consistency, and reward are the keys for our new routine exercise pattern successful journey. As quoted from Israelmore Ayivor, "Sow the seeds of hard work and you will reap the fruits of success", the result never betrays its process. Along with my new exercise pattern and lifestyle, I feel so much way better, so much happier, and more motivated during my current condition. Routine exercise pattern during quarantine is beyond only a seasonal hobby; exercise is a necessity, a lifestyle, with "body goals" as a bonus from losing weight from new exercise pattern also awaits us! So, we could still always be a better and healthier version of ourselves every day even during quarantine with routine exercise pattern and fitness plan. Good luck!

"Nothing can ever take our 'body goal' and healthy lifestyle dreams, even the quarantine."

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Fractured (2019)



Genre: Mystery and Thriller/ Psychological thriller

Director: Brad Anderson

Screenwriter: Alan McElroy

Cast: Sam Worthington, Lily Rabe, Lucy Capri, Adjoa Andoh, Stephen Tobolowsky, Lauren Cochrane, Shane Dean, Chris Sigurdson

Distributor: Netflix

Duration: 100 minutes

Synopsis: Ray Monroe (Sam Worthington) is a recovering alcoholic and is struggling with his marriage with Joanne (Lily Rabe). One day they are returning from a Thanksgiving dinner at Joanne's home. She is clearly upset about how Ray behaved at her place. Then there is an accident that makes them rush to the nearest hospital available. Unfortunately, Ray's wife and 6-year-old injured daughter Peri (Lucy Capri) disappear from the emergency room and he becomes convinced that the hospital is hiding something. Finding his family means facing the truth.

Review:

I first watched *Fractured* in the middle of 2020 and recently found out that the director of this movie is Brad Anderson. This time he released another adrenaline-filled psychological thriller that will keep the audience guessing until the very end. He has proven himself skilled in making thrillers as his past films were such a masterpiece. I have been watching thriller movies since I was a kid and the one that I will never forget is *The Call* (2013) which tells about a 911 operator who gets a call from a kidnapped teen and turns the girl into a partner to help save her life.

Screenwriter Alan McElroy, who has extensive genre credits, has come across a reasonably nightmarish scenario, one to which any father can certainly relate. A seemingly kind doctor (played by Stephen Tobolowsky) decides to send Peri for a CAT scan and requires Ray to spend hours in the waiting room. You'll have a good idea of what it's like sitting through the movie if you've ever anxiously stayed in a hospital waiting room.

In this movie, Sam Worthington plays a man desperately looking for his wife and daughter who went missing in a hospital. The ambiguity of the main character whether he is innocent or sinister makes you want to reach the next scene immediately. Worthington delivers an effectively tense performance, making the audience feel sympathy for his character's plight and at the same time, providing hints that Ray may indeed not be a completely innocent protagonist. He delivers his career-best performance in *Fractured*.

One of the best things about this movie is that it is so relatable. We all have a certain degree in our lives when we do not want to face harsh realities. It is because human's first reaction to traumatic experiences or events is denial. When we talk about trauma, first we have to understand how our bodies respond to fear. It is the familiar fight or flight: We either stay to confront what's making us anxious, or we flee in an attempt to avoid or outrun danger.

I realise that Brad Anderson sometimes gives overused titles for his movies, for example; Fractured (2019) and The Call (2013). It sometimes confuses people whenever I recommend them to watch the movies. Despite the overused title of the movie, it teaches us a lot, especially the ones who have a personal interest in psychology or mental health. You will know the true essence of this movie only by watching it from the beginning until the end, as the common saying "don't judge a book by its cover."

For those of you who love thrillers with some family background story, you will not regret watching this incredible movie. It is one of the movies that blew my mind with the plot and how it ends. The moral value is like no other thriller movies out there. You need to focus on every single detail of the movie because that is how a mystery can be solved. Every second you spend sitting in front of your laptop or smart TV is worth watching. It will also be a lot of fun if you watch it with your friends or family and feel the adrenaline together. Overall, the plot and end of the movie are quite invasive which makes the movie satisfying and memorable.



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Understanding the effect of misogyny on mental health through the eyes of Cersei Lannister



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AMSA India

The world of ASOIAF (A Song of Ice and Fire) has mesmerised readers ever since the first book was released in 1996. It has enthralled readers to such an extent that it was made into an HBO TV Series called "A Game of Thrones." The book series is filled to the brim with stories of magic, knights, and dragons. Yet, hidden beneath the element of fantasy, lies the stories of characters suffering from undiagnosed mental illness. And, who better to showcase this than the Queen of the Seven Kingdoms, Cersei I Lannister.

Before going into the character and her motivations, let us first delve deeper into the environment a character living in ASOIAF would go through. The society of ASOIAF was deeply feudal with patriarchy reigning supreme. In the past, a civil war had broken among the heirs of the erstwhile Targaryen rulers on the issue of succession called the Dance of the Dragons. Although the war ended with the son of the female claimant (Aegon III) ruling, it unfortunately cemented the agnatic succession for decades to come. Misogyny permeated every breath of the Seven Kingdoms. Women were forced to behave in strictly defined, narrow gender roles, or they were ostracised. In this bleak setting did Cersei Lannister grow up.

Cersei I Lannister is the firstborn child and only daughter of Lord Tywin Lannister, Head of House Lannister and the Lord Paramount of the Seven Kingdoms, and Lady Joanna Lannister. She has a younger twin brother by the name of Jaime Lannister and another brother suffering from dwarfism called Tyrion Lannister. As a child, she and her twin were indistinguishable from each other, and many times she wore Jaime clothing and took lessons in sword-fighting from the master-of-arms present at Casterly Rock. Sadly, as she grew up, the differences between her and her twin became more noticeable and Cersei found herself relegated to doing the polite ladylike tasks of sewing and gossiping with her ladies in waiting. It is not impossible to believe that it was at this time that Cersei would have realised that her younger twin brother would receive all the power and glory while she would be made to live just as a wife of some powerful prince.

In her time of living in Casterly Rock as a child, two instances stand out the most. The first is when she was caught by her mother while she was sexually experimenting with Jaime. Barring the displeasing idea of incest, this incident displays a key motivation of her character. Cersei sees Jaime as a mirror to herself; what she would be if she were born a man. The second incident is when she killed her childhood friend Melara Hetherspoon after Melara asked Maggy the frog whether she would marry Jaime.

It is of no surprise that Cersei would have felt threatened by the hint of any thought of Jaime being married. Whatever power Cersei derived in her formative years was only given to her due to her relationship with her male family members.

In the year 279 AD, a rebellion broke out between the Targaryen monarchy and some of the Lord Paramount of the Seven Kingdoms following the presumed kidnapping of Lyanna Stark and the unjust execution of Lord Paramount Rickard of House Stark and his heir Brandon Stark. The rebellion nicknamed as Robert Rebellion ended with Robert of House Baratheon plunging his warhammer into Rhaegar Targaryen breastplate and killing him. Until then House Lannister remained neutral to the fray. Once the death of Rhaegar occurred, Lord Tywin swung into action and by modes of deception with the help of Grand Maester Pycelle and Jaime who was now the kingsguard sacked Kings Landing and killed Aerys I Targaryen. To seal the alliance between House Baratheon and House Lannister, Cersei was made to marry Robert Baratheon.

The marriage of Cersei and Robert is a tale of tragedy. On the very first night, Cersei heard her husband call out another woman's name while they were having sex. Such an act made Cersei feel so small and insignificant that not only did she hate the utterance of the name of the other women but also, she tried to regain her power back by sleeping with her brother by trying to sleep with him. Furthermore, the travesty of her marriage with Robert continues with her being repeatedly raped by her drunk husband. This unjustness was further aggravated by Robert claiming that the alcohol-impaired his ability to remain the events of the preceding night. Once in an act of self-defence against the rape, Cersei ends up hitting Robert with a horn of ale. Even though she sired three children (2 sons, Joffrey and Tommen, and 1 daughter, Myrcella), her resentment against Robert has developed to such an extent that none of the children was of Robert's paternity, and the child which was of Robert's, she aborted it. Her disgust for Robert culminated in a pinnacle leading to his murder by poisoning. The entire marriage taught her the importance of the proxy power she can gain through the male gender and that power she so desires can only be attained via sexual relations. She would use this internalised misogyny throughout her entire time as Queen Dowager.

As Queen Dowager she tries to exercise her power through her son, Joffrey and later through Tommen.

It is of no surprise then that she sees Joffrey betrothed, Sansa, and later Tommen's wife, Margaery as a threat. Her behaviour with Sansa is passive-aggressive with her advising Sansa, that although Sansa might hate her husband, she will love the child she bears. With Margaery, this hostility comes to a crescendo with Cersei falsely accusing and imprisoning Margaery for adultery and treason. She regularly sends disenfranchised women like her maid, Senelle and Taena Stokeworth, to be tortured by the mad maester Qyburn. Most egregiously of all, she ends up raping her confidante and bedmate Lady Taena Merryweather. Cersei internalised misogyny was now being externalised through her relationship with other women. When Brienne of Tarth ends up bringing Jaime to the court from the prison of Robb Stark, Cersei first thought on seeing the lady knight is mirth and mockery rather than respect for her fellow brethren getting the power that her gender has never been given.

In a misguided act of protecting her only remaining son, Tommen, from the deaths that befell Joffrey and Tywin, Cersei ends up ruling as proxy while Tommen played with his cats. This is where we see her weak mental health completely breaking. As a ruler, she is completely paranoid and sees every ally as her nemesis. She believes that she is as skilled in diplomacy as Tywin and the reason why she is not given the respect she deserves is because of her gender. She fills her court with sycophants and bootlickers. To arrest Tyrion whom, she believes to be the perpetrator of the murder, she burns the Tower of the Hand of the King using wildfire and executes innocents just because they bear striking resemblance to Tyrion. This paranoia of her is the driving force behind the arrest of Margery and the reinstatement of the disbanded Faith Militant. Her paranoia coupled with her internalised misogyny is what leads to her downfall at the end of "A Feast for Crows" and "A Dance with Dragons."

If Cersei Lannister had been in a more modern, accepting time she could have been helped by society. Unfortunately, she lived in a regressive time and thus she suffered in silence and vain. Even her punishment by the High Septon in "A Dance with Dragons" is extremely gendered with her being paraded naked through the streets of King's Landing while men and women making inappropriate comments and thereby believing that her psyche could be broken so that she would live the rest of her life isolated and humiliated.

There's 'Gon' Be Better Days and We 'Gon' DO Well Together



On 10 October 2020, as we celebrated World Mental Health Day, the Avengers of K-POP known as Super M was having conducted a collaboration with the World Health Organization (WHO) in the first global online advocacy event for mental health entitled "The Big Event". Super M was performing performed "Better Days" from their very first full-length album.

"Today, we are here to support World Mental Health Day. We have prepared 'Better Days' for The Big Event held by WHO. There is still hope for all of us," said Baekhyun as the leader of Super M which was followed by Mark and Taeyong in a video uploaded by WHO on Saturday, 10 October 2020





Through "Better Days" itself, Super M would like to encourage people to stay optimistic in their lives, although they are facing sadness that makes them devastated. Besides, this song also delivering the importance of positive energy, stay healthy, and caring for one another. Hence, it is a suitable and perfect song to listen to during this pandemic.

I know that it feels like
The world is falling down
And you can't make it through
There's gon be better days, better days, better days

Just gotta hold on
Yeah, I know that it hurts
But the sun will shine through
There's gon be better days, better days, better days
Around the corner it's true

The sneak peeks of the lyrics of to the song "Better Days" fit perfectly with the current situation, where we feel that the world seems to be collapsing. Other than "Better Days", their very first album included various songs such as "Together at Home" and "With You" which have the same message, which is to give their spirit during this pandemic era.

On 9 April 2021, Super M released their song titled "We DO" which was a collaborated collaboration with a multinational insurance company, Prudential Corporation Asia through the "We DO Well Together" campaign.

The dynamic and futuristic hybrid-style track with an up-beat retro disco tune reflects the song's purpose to share good energy and promoting physical and mental health positively and proactively.

On the campaign's official website, Super M states, "Through 'We DO Well Together,' we call on everybody to put in the same energy and spirit as 'We DO' to achieve our life goals together." Their ambition is to spread positive energy and to help as many people as possible in achieving not only good physical health, but also mental wellbeing as well.



Written by:
Tatyana Milenia
AMSA - INA (Unpad)



CREATIVE CORNER



Little girl

Written by:
Sanjana Rajurkar
JNMC,
DMIMS(DU),
Wardha
AMSA India



She was just a little girl.
At four, without a clue.
Snuggling deep in the covers,
to not let demons through.

She was just a little girl.
At seven, a new life in front of her.
Bawling its eyes out.
She was standing helpless,
Fist clenched, cheeks wet.
The sound growing louder and louder.

She was just a little girl.
At eleven, her world falling apart.
Taken away from home.
Red eyes and drained future.

She was just a little girl,
growing through the years.
Broken soul, broken heart.
Finding herself through,
alone through the dark.

Now she wasn't just a little girl.
At seventeen, she stood up.
Assembled her broken heart,
and took off to a new start.
Mended her broken soul,
to not let anyone in.

Now she was a dauntless.
With a heart of frozen gold,

she gave a meaning to her own life, to grow into something more.

TEAM ONE SINGLE BRAINCELL
(YAN LI, HARRY LAM, KEX HU,
ALLEDES DA CONCEICAO)

Sinopharm

✳ Efficacy: ~80%

✓ No major safety issues

≥18 yrs old **OK!**

>60 yrs old,
in good health **OK!**



BioNTech + Fosun Pharma

✳ Efficacy: >90%

! moderate rate
of systemic
side effects

≥18 yrs old **OK!**



GET

VACCINATED TODAY!



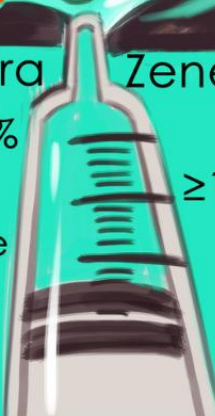
AstraZeneca

✳ Efficacy: ~70%

! moderate rate
of systemic
side effects

≥18 yrs old

OK!



PROMOTIONAL POSTER FOR COVID-19 VACCINES AVAILABLE IN MACAU, HIGHLIGHTING THE IMPORTANCE OF HERD IMMUNITY AND SOCIAL RESPONSIBILITY OF RECEIVING THE VACCINATION

Created by:
Yan Wa LI
Harry LAM, Chun Hin

**Macau University of Science and Technology,
Faculty of Medicine**

AMSA Macau



SOME SIDE EFFECTS

Written by:
Fata Imadudda'wah

**Faculty of Medicine,
University Padjadjaran**

AMSA Indonesia

Fahri glared at the traitor in the room; his left arm. It did nothing in response, and that was exactly the problem. After three seconds of stubbornness, he sighed in defeat and shouted across the room, "Hey, Bahri! My hand died."

"What?" Said this twin of his, who continued cooking while answering.

"Deceased. Numb. Cannot be moved."

Fahri did not mention the dull, throbbing pain radiating from his upper arm. It was uncomfortable, but nothing too bad. An unnecessary trip to the clinic was the last thing he needed. "Guess this is that side effect the doctor mentioned. Nothing else, though."

"Nothing yet."

He winced at the response. "Thanks."



"Says the one hospitalised from penicillin."

"I am allergic!"

"And you said you can get an allergic reaction from the vaccine, too." Bahri, square-faced and stern-faced, came in without much fanfare. The smell of fried eggs and noodle wafting from the two plates he carried overrid any impression.

"And I do get one! This!" Fahri shook his left hand by the wrist. It was heavy and unresponsive, like a rag doll. The pain sharpened with each forced movement, but he did not let it show. "It is just this!"

Bahri tore into his dinner, with Fahri following with his good hand. Still, his eyes darted over and over to Fahri's face. The one being observed played obliviously and showed no sign of being in pain, and he played well. Bahri patted Fahri on the shoulder as he left for his room, "Just tell me if you feel anything."

Fahri rolled his eyes. "Relax. Just a numb hand cannot kill me."

~~~

"I am dying."

Bahri rubbed his weary eyes, trying to get a better look at the shivering creature on the bed.

Fahri huddled in layer upon layer of blankets, curling into his stomach with his body trembling and cold. A thin coating of sweat left him shivering, groaning mess.

"How are you feeling?" Bahri pressed the back of his hand against Fahri's forehead. Warm. The pressure of his hand caused another wave of shiver all over Fahri.

"Construction site. Jackhammers. All over my head." Fahri groaned, turning away to hug the bolster. "My arm is sore. My nose is itchy. I am feeling cold and hot all over and I have not finished my essay for Monday's ethics class. I'm halfway to the grave and halfway wishing I'm already-"

"Where is your painkiller?" Bahri rummaged through the desk drawers. He had only had 3 hours of sleep and had no time to entertain the nonsense.

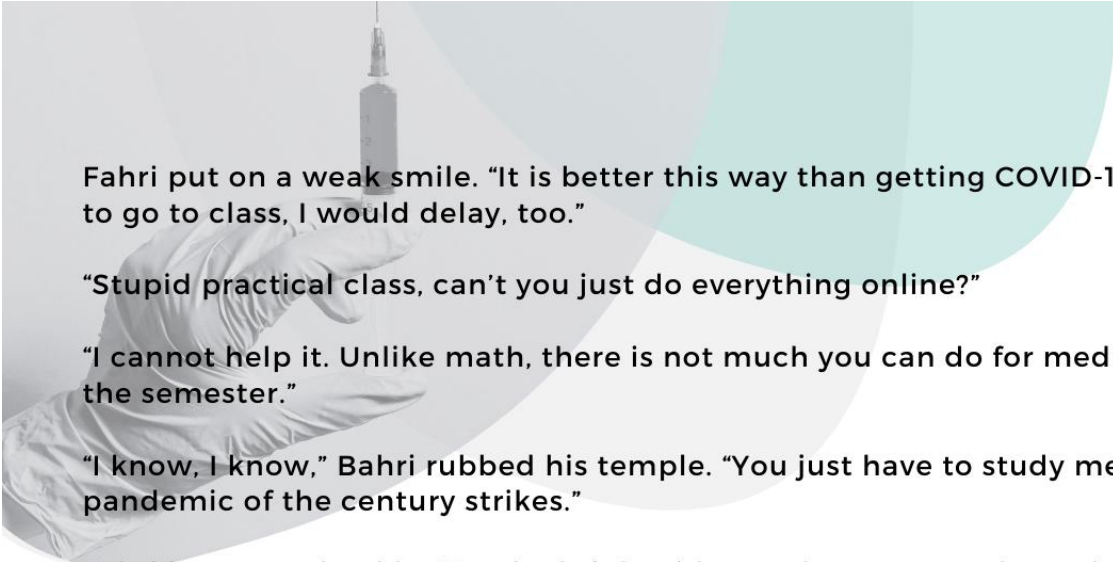
"Wardrobe. Overhead drawer." Fahri let out another groan, feeling like the most miserable person on Earth. Bahri tuned the never-ending croaks of misery out while he searched for the right medicine.

Bahri fetched a glass of water from the kitchen and handed it over with a small pill. Fahri reluctantly ended his bouts of complaints to sit and took his medicine. Bahri needed to help so he did not spill the water.

"I will change your clothes. Try to sleep it . You will feel better in the morning."

The thick layers of blanket got Fahri sweating like in a sauna underneath. Changing clothes had Fahri drier and more comfortable. Bahri put a cold compress over Fahri's forehead. Inadvertently, Bahri let out a sigh. "I told you. You should have waited for a better vaccine."





Fahri put on a weak smile. “It is better this way than getting COVID-19. If I did not have to go to class, I would delay, too.”

“Stupid practical class, can’t you just do everything online?”

“I cannot help it. Unlike math, there is not much you can do for medicine this late into the semester.”

“I know, I know,” Bahri rubbed his temple. “You just have to study medicine when the pandemic of the century strikes.”

Fahri let out a chuckle. “On the bright side, you know more about the pandemic than your average student.”

“And have a larger chance of exposure to it. Thanks.”

“I love you too,” Fahri grinned. “You should have taken medicine, too.”

Bahri scoffed. “You wish. This one-time nursing you is enough.”

“Hehe. Yeah, goodnight.” Fahri pulled his blanket up with an impish smile.

Bahri stared at Fahri strangely. “What?”

“Well, if I got like this now, I might get like this again next time.”

“Next time?”

“Two-dose vaccine. I will get the next one in three weeks. Goodnight.”

Fahri turned his face to the wall, away from Bahri’s ashen face. He looked at his phone. Five in the morning; he had class at seven. Online, but still. He opened his calendar and groaned. Three weeks from now would be the week before the midterm. He was not looking forward to it.

## OBSESIONES Y COMPULSIONES



**Manvi Lamba**  
**Maulana Azad Medical College,**  
**Delhi University**  
**AMSA India**

Haanah," her boyfriend said quietly. "Life cannot stop. We need food to survive."  
"I would rather starve, honestly," groaned Haanah.

Haanah held out in self-quarantine for as long as she could with her boyfriend, Sam. Now, staring down nearly empty cupboards, it was time for her to put some social distancing into practice and restock. Except the idea of leaving the car during a pandemic felt like literal torture to her.

Haanah has had obsessive-compulsive disorder (OCD) most of her life, but it reached a fever pitch (pun not intended) during the COVID-19 outbreak.



Touching anything felt like willingly placing her hand over a stove burner. Breathing the same air as anyone near her felt like inhaling a death sentence. And not just afraid of other people she was, either. Because carriers of the virus can appear asymptomatic, she was even more fearful of unknowingly spreading it to someone's beloved or an immunocompromised friend.

But with something as serious as a pandemic, OCD being activated makes a lot of sense. In a way, it is like the brain is trying to protect itself. The trouble was that it was not actually helpful – for example – avoid touching a door in the same place twice, or refuse to sign a receipt because you are convinced the pen will kill you. And it is definitely not helpful to insist on starving rather than buying more food.

In other words, there is a difference between being cautious and being compulsive.

But as her boyfriend said, life cannot stop.

Haanah finally decided to step in the car, and not let her guard down until she finally binged on stocks. But the moment Haanah put her foot on the ground, she started to feel anxious, and all the images of her getting infected began to flood her mind.

"What if I died? What if I became asymptomatic and transferred this virus to Sam? What if my parents got infected? What if Sam's diabetic mother got this infection? How will I survive with this guilt?"



She was shivering and nauseous. She tried calling Sam, but he did not respond. She had an overwhelming amount of fear, dizziness, nausea, and her thoughts were racing uncontrollably.

The blood pounded in her ears. Her heart thudded in her chest. Her hands shook. Her feet tingled. Her vision disfigured as if she were looking through a fish-eye lens. She had to get away. She could not stay near that damned house any longer. She could not look at it. There was too much of a risk of someone walking out of it and trying to talk her out of her decision.

She was stranded. She clutched the steering wheel, her hands wrapped so tightly around it that her nails dug into her palms. Breathing was hard. Really hard. As if she had just run the London Marathon.

She tried calling Sam again, this time he picked up.

"I am having this cold sweat, but I am on fire," she said with trembling hands. "I am dying, I am going crazy, and I know I will not make it through. Sam, just know you are the love of life, and I am at the plaza having this panic attack maybe because I forgot to take my meds, or I think I had them, I do not really remember!" shrieked a frightened, insecure Haanah. She was hyperventilating yet trying to calm herself down with the 'scream therapy'.

Sam rushed to get Haanah back. He found Haanah, all unconscious in her car, kaleidoscopic. It seemed as if life had been drained right out of her. He took her white, almost lifeless body in his hands, kissed her forehead, and without losing a second, drove her back home.

Haanah gained her heart and soul back after almost 13 hours. She moved her head, eyes looking out for answers. "Where am I? Is it my home? Where is Sam? Who brought me back? Was I dead?" ruminates an addled Haanah.

"Sam? Where are you? Oh! My heaven and Earth look I fought with the Stars to get back to you. Where on this globe are you?"

She wanted to stand up, but the floor felt like it was slipping away every time she tried. After almost an hour, Sam came into the picture. He was with a well-built woman, with glistening eyes and red hair. Haanah's heart started drowning. Her mind and heart started racing again, with thoughts she never wanted to face.

"You do not have to worry, I am Mariah, a psychiatrist. You had a panic attack before." affirmed the red hair woman. "Your boyfriend, Sam, found you comatose in your car. Honestly, it was he who fought with the stars to get you back. He shot you with benzodiazepine, which I must appreciate. He called me when he heard your voice for briefing you further." Her words relieved Haanah like a hot spring bath.

"So, here I am to help you keep your anxiety at bay." Mariah winced with a coquettish smirk. "To begin with, the best way I know of to fortify health – both mentally and physically – is to keep yourself fed, hydrated, and rested. That is why Sam wanted you to restock." Her slender fingers pointing towards the cramped cupboards.

Mariah continued, "Also, completely boycotting social interaction can be detrimental to your mental health. As long as you maintain 6 feet of distance between yourself and others, it is perfectly safe to take a walk around your neighbourhood. Isolation is never the answer when you are struggling with your mental health. So whenever possible, make time for a breath of fresh air, even if you cannot go very far. When it comes to precautions, do not make the rules!



Always stick to the CDC's recommendations that include practising social distancing, by keeping 6 feet of space between yourself and others, avoiding large gatherings and nonessential travel where the virus is more likely to spread, washing your hands with soap and warm water for 20 seconds after you have been in a public place, or after blowing your nose, coughing, or sneezing, and cleaning or disinfecting frequently touched surfaces once per day like tables, doorknobs, light switches and countertops. And try to accept the fact that you could take every conceivable precaution, and still end up getting ill to no fault of your own. Learn that radically accepting uncertainty, as uncomfortable as that may be, is actually the best defence against obsessing." Mariah explained the duo patiently.

Haanah got a sense of solace in the doctor's voice. She felt serene yet determined. She decided to include her suggestions in her mundane lockdown lifestyle, or at least try to



No matter where this voyage of life takes you,

Do not be swayed by the waves of doubt.

Do not let the whirlpool of fear bring you down.

Hold tight, and sail through this sea of uncertainty.

Let the storm rage on, you will make it through.

Keep your head up, captain. Do not lose hope.



**Michelle Joshalyn  
Natasha**  
**Faculty of Medical  
and Health  
Science, Krida  
Wacana Christian  
University**  
**AMSA Indonesia**



# THE SMART CHOICE



**Swagata Saha**  
**Banas Medical**  
**College and**  
**Research Institute,**  
**Palanpur**  
**Hemchandra-**  
**-charya**  
**North Gujarat**  
**University**  
**AMSA India**



It has been known for a long time that every vaccine to date has always displayed certain signs and symptoms that symbolises the activation of the immune system. These manifestations are called "side effects" by the layman. With the advent of COVID-19, what we need to understand is, refusal of accepting the vaccine against this deadly disease, just because of the fear for such signs and symptoms (which are naturally common and within acceptable range), will lead to a greater risk of getting infected by it, which eventually, might lead to death. Hence, it is better to make a smart choice by dealing with something less severe than experiencing the worst.

# Shackles of the Mind

Breaking through these shackles leads to a sense of perspective similar to a ray of light entering a dark room.

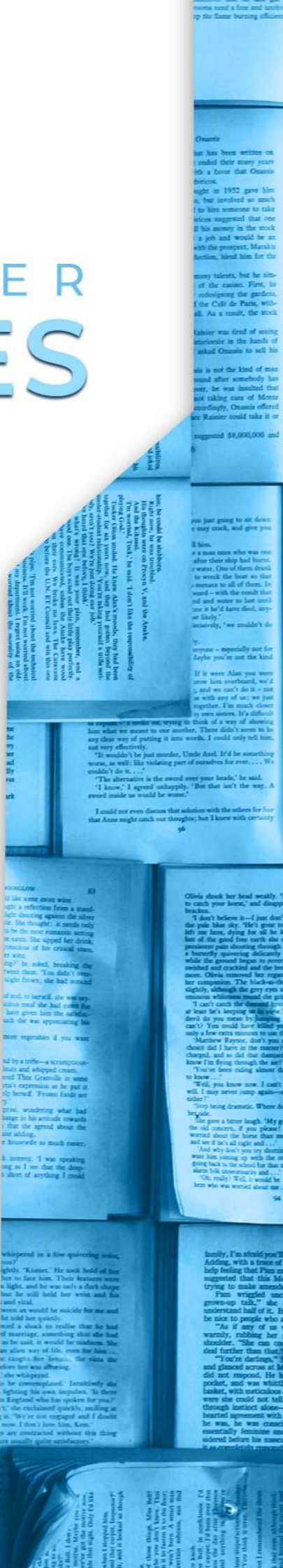
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# CLINICAL CHALLENGE

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Catholic University of Indonesia  
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Ong Shu Xin

Taylors University – MBBS  
AMSA Malaysia

Grace Virgin Antonius

Faculty of Medicine, University Swadaya Gunung Jati  
AMSA Indonesia

## Congratulations!



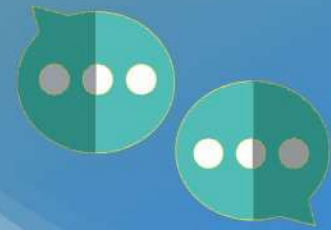
[bit.ly/aspire34quiz](https://bit.ly/aspire34quiz)

## World Immunization Week Be Considerate, Be Vaccinate!

Take this challenge and **scan the QR code** to answer the questions!

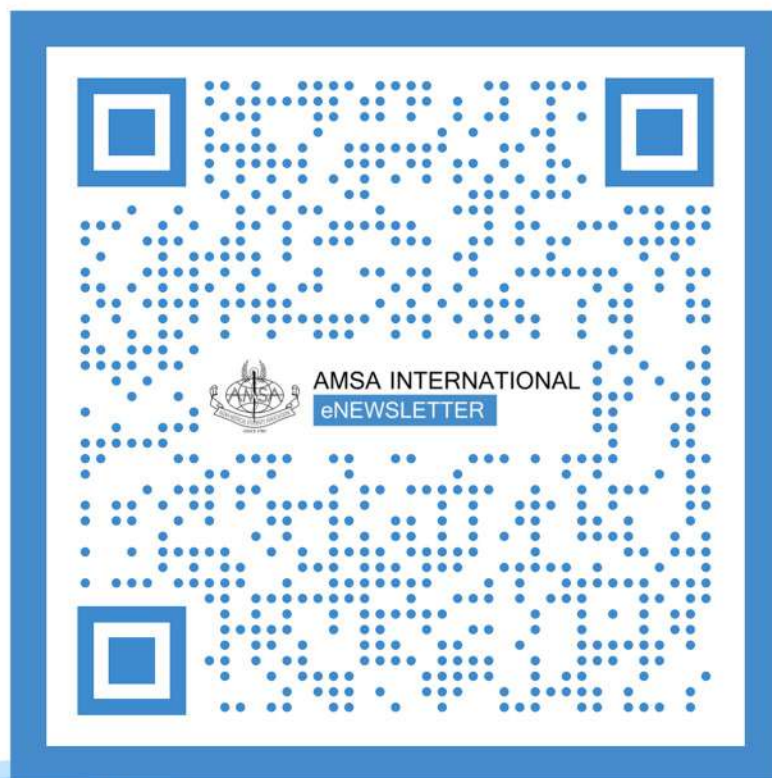
The three fastest and most correct answers will be the winners and be announced in **ASPIRE 35**.

**Are you able to  
reach the top?**

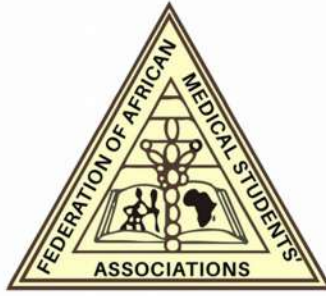


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